

Australia's National Framework for Environmental Management Systems in Agriculture

Natural Resource Management Ministerial Council

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Foreword

Agriculture represents a diverse and vital sector of Australia's economy, with responsibility for the production, processing and marketing of food, fibre and ornamental products. There is growing interest in the environmental performance of agriculture, coupled with the industry's ability to provide high quality products to both domestic and international markets. It is through this public interest and market pressure that everyone involved in agriculture is increasingly aware of the need to manage agriculture's impacts on the environment in a positive and sustainable way.

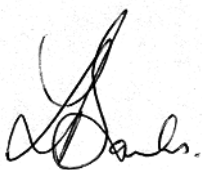
An environmental management system (EMS) is a systematic approach that can be used by any enterprise or organisation to continuously improve its business management to achieve efficiencies and better environmental outcomes. The adoption of formal EMS in agriculture is relatively new, so Ministers for Agriculture and Natural Resources across Australia have taken the initiative to develop a National Framework for EMS in Australian agriculture. Its purpose is to provide a context and a common level of understanding for the adoption of environmental management systems in agriculture, recognising that the details and content of an EMS will be determined by the individual business.

The National Framework provides a set of principles that describe the broad parameters needed to achieve consistency and acceptance across the agricultural sector. It also describes the relationships and roles of the range of participants in environmental management in agriculture—including landholders, industry groups, community groups, and governments at the local, State and national scale.

Most importantly, the Framework emphasises that the adoption of an EMS by a business is voluntary and that the roles of government and industry groups are to facilitate the provision of information and assistance.

The National Framework for EMS in Agriculture has been developed by a national EMS Working Group with significant input from government, industry and the community through a public consultation phase, targeted workshops and the involvement of the national Industry/Community EMS Steering Committee. The Working Group members are to be commended on their thorough consultative process, including input from New Zealand and other overseas experiences. They have delivered a valuable national framework and progressed the national approach to EMS in agriculture.

The National Framework has been endorsed by the Natural Resource Management Ministerial Council, which will now oversee its use in supporting and coordinating the voluntary adoption of EMS in Australian agriculture.



Len Banks

Chair EMS Working Group

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Preface

Australia's National Framework for environmental management systems (EMS) in Agriculture was developed to provide a national context within which existing industry programs and growing interest in EMS can be harnessed to best advantage to improve management and contribute to both market and environmental outcomes across industries and regions.

By defining roles across the board, the National Framework provides a context for coordinating and facilitating the wide range of voluntary, industry-led approaches to environmental and quality management in agriculture and helps to improve integration of these activities across different scales and across industry sectors.

The Framework is relevant to all landholders, regardless of their current level of engagement with environmental management issues, and even if they have no EMS in place. It aims to support individual landholders who wish make a significant contribution to improving the sustainability of agricultural production through EMS at whatever level and pace is practical and appropriate for them. In this way, the Framework aims to help meet community expectations of environmental, social and economic outcomes.

There are clear parallels in the development of ecologically sustainable development (ESD) principles and this National Framework for EMS in Australian agriculture. The principles for ESD developed for Australia¹ apply to EMS. In return, implementation of this Framework and voluntary adoption of EMS will help Australia to deliver on these ESD principles.

The foundation of the Framework takes a process standard compatible with the International Standard ISO 14001, to give the opportunity for external auditing to anyone developing an EMS. The intended outcome is an agricultural sector in which all parties are confident that they are managing in a way that conducts business well and provides a systematic approach to identifying and managing environmental, legal and commercial risk.

¹ Guiding principles for ESD are provided in Appendix 3. The goal of ESD is development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes upon which life depends.

1. What is an EMS and how does it work?

An environmental management system (EMS) is a systematic approach that any enterprise can use to identify and manage its impacts on the environment. As an integrated business management tool, an EMS also provides opportunities for improved business performance by complementing and building on existing activities such as property management planning, best management practices (BMP), Codes of Practice, product certification and quality assurance (QA) schemes.

EMS provides a management framework based on a simple ‘plan, do, check, act’ cycle that achieves continual improvement (illustrated in Figure 1). A manager uses the system to identify likely environmental impacts and legal responsibilities, then implements and reviews changes and improvements in a structured way. An EMS provides an overarching management tool and can help managers achieve goals of sustainability and competitiveness, leading to overall improvement in management and marketing performance.

To provide credibility for external stakeholders, landholders² can decide to have their EMS externally audited and certified to an acceptable standard, such as the international ISO 14001 standard. EMS can only be developed by and applied to those activities over which an enterprise or organisational structure exercises direct control.

Figure 1. The continuous improvement cycle: the foundation for an environmental management system

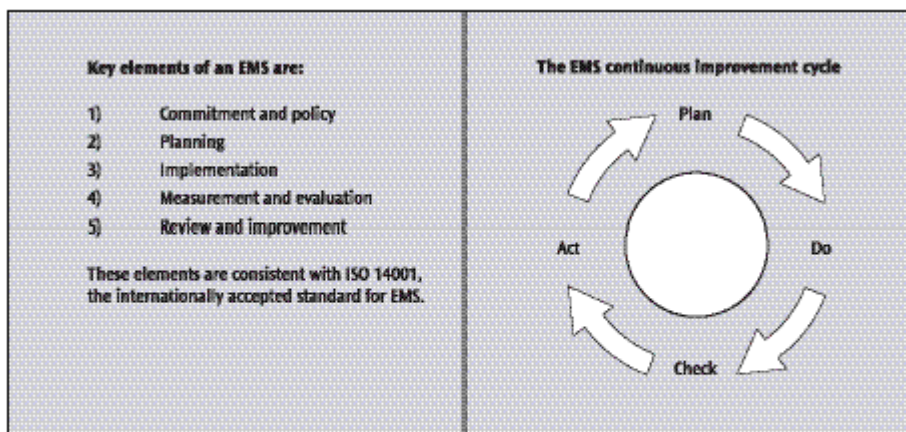


Figure 1. The continuous improvement cycle: the foundation for an environmental management system (EMS).

1.1 EMS in context

It is well recognised that sound management of natural resources is critical to the long-term economic, social and environmental sustainability of agriculture. Governments have the capacity to regulate to protect natural resources and the environment. There are also an increasing number of partnerships being developed with landholders, industry, and the wider community to achieve these aims.

Australian governments have taken several major initiatives on natural resource management in recent years. After the Decade of Landcare finished there was widespread discussion that sought to develop a strategic national framework that would be capable of responding to emerging environmental challenges. Public discussion papers such as ‘Managing Natural Resources in Rural Australia for a Sustainable Future’³ recognised the need to apply

² The term ‘landholder’ is used throughout this paper to include all farmers, pastoralists, horticulturalists and others engaged in making a living from the land or with responsibilities for managing the land.

³ ‘Managing Natural Resources in Rural Australia for a Sustainable Future’ by the National Natural Resource Management Steering Committee, on behalf of ARM CANZ, December 1999.

policy approaches in an integrated way across regions and catchments and at the local and farm levels. More recently, programs such as the National Action Plan for Salinity and Water Quality have built on the work started by the Natural Heritage Trust, the Murray–Darling Basin Commission, State and Territory strategies and the Council of Australian Governments’ Water Reform Agenda.

The demands for improved sustainability are being driven not just by government, but also by consumers who are increasingly demanding evidence that their food is safe and that agricultural commodities are produced ethically and in a manner that has not harmed the environment. Consumer demand has led many retailers to require their suppliers to be third-party audited, and to have hazard analysis and critical control point (HACCP)-based safety plans in place. Other voluntary approaches to food quality and safety include quality management systems, SQF2000, and a range of Codes of Practice and BMPs, that address QA, food safety, and animal welfare. Some retailers are now seeking assurances that production practices are environmentally benign.

There is much that landholders can do, and are doing, to promote environmental performance and QA in agriculture. Most landholders already fulfil their legal obligations and are moving towards a duty of care required by legislation or industry Codes of Practice. They may also choose to implement other voluntary environmental management arrangements such as BMP guidelines, or to participate in any of a number of environmental certification and labelling initiatives. Implementing an EMS that incorporates all these programs potentially gives landholders an internationally credible means of safeguarding trade and improving the sustainability of agricultural production.

EMS is a valuable tool because it provides a voluntary, flexible approach to business management and because it encourages activity beyond compliance. An EMS will help prepare landholders to meet current and future challenges, whether imposed by government regulation, by consumer market preferences, or by communities concerned about their local environment.

The National Framework provides a mechanism to facilitate the integration of all these approaches, encouraging the use of EMS as a powerful tool for improving management and achieving natural resource management outcomes at the industry and regional level. The Framework provides the links between on-farm EMS and environmental objectives for agriculture at the regional scale and it will help individual efforts to align with regional targets and contribute to larger scale environmental outcomes.

1.2 How does a landholder develop an EMS?

EMS is based on a ‘plan, do, check, act’ cycle and it comprises the following stages:

- initial environmental review
- develop an environmental policy
- develop an environmental management program
- define roles and responsibilities
- carry out appropriate training and communication
- operational control and document control
- monitoring and measurement.

Review environmental impacts

An environmental review is the first step in developing an EMS on a farm. It allows an individual landholder to identify the full range of environmental values and assess the significant impacts of farming operations on the environment. The landholder would then assess the significance of those environmental impacts and establish priorities for action, taking into account regional and catchment targets in the area.

Develop and implement environmental policy and plan

A landholder is then able to develop an environmental policy and plan for the farm. This includes setting objectives (such as deciding to improve effluent control) and targets (for example, setting a deadline for construction of an effluent dam), and documenting them in a simple statement of intent for the farm or enterprise.

Landholders at this stage would identify any legal obligations and minimum requirements set by the industry or the region. They would also set out the ways in which they plan to monitor their progress over time. They would then move into the action phase, carrying out what they have judged to be the most important changes to improve environmental management on the farm or enterprise.

Review performance

Once the system is in place, the landholder can take stock of achievements. Management actions are reviewed and corrective action taken as required to improve or modify activities. In this way EMS involves embarking on a cycle of continuous improvement that can lift the efficiency of farm operations at the same time as reducing impacts on the environment.

Maintain records

Developing an EMS enables landholders to keep good records of on-farm activities such as spray diaries, crop rotations, and drenching details. Documentation of these activities and their outcomes helps track progress over time. This serves to inform future actions and to provide evidence of a landholder's efforts to manage the environment.

Such records can provide information needed for any QA system as well as the EMS, providing evidence for any 'clean and green' marketing claims landholders might wish to make. It will enable landholders to have their systems independently audited and certified to ISO 14001, if they choose to do so. Implementing an EMS will take landholders beyond compliance with legal and catchment requirements.

"Components of EMS are very straightforward—record keeping, spray drift management—things I'd always said I'd get around to doing and now have done. The system has provided me with the discipline to encourage me to actually do it. The external audit was an important driver. The other benefit is the ability to work towards progress in stages." Grain farmer, Liverpool Plains

1.3 Gaining recognition for an EMS

Landholders can maximise the value they get from adopting an EMS by seeking recognition for their system through a process of audit and certification. The most credible form of external recognition involves engaging a third-party auditor to review and certify the EMS against ISO 14001—the internationally recognised standard for EMS. In Australia, this international standard was adopted by Standards Australia as AS/NZS ISO 14001:1996. The Joint Accreditation System of Australia and New Zealand (JAS-ANZ) accredit certification bodies to carry out third-party audits against the requirements of specific systems, such as ISO 14000 series for EMS and the ISO 9000 series for QA.

Rather than third-party audits, some landholders may seek a second-party audit (characterised by a formal relationship between the parties, such as supplier and purchaser) or peer review by trained industry auditors. It is always possible to begin with self-assessment and later choose to be independently audited with a view to certification. Alternatively, landholders may decide to use only an internal audit and review process for self-assessment. These are decisions that remain with the landholders and industries.

For their part, governments can also help by encouraging streamlined auditing and certification services, and by encouraging common audits of several processes. The intent is to seek to reduce complexity and duplication (and associated costs for landholders) through discussions with certification bodies. Governments also have a strong interest in ensuring Australian developments in EMS are compatible and internationally credible. Various rating and reward systems are emerging for environmental performance and there are concerns that a proliferation of such schemes could reduce their credibility, both in Australia and overseas. Given this, there is a preference for encouraging EMS developments in a manner that is consistent with the basic elements of ISO 14001, although the decision to become audited and certified is left entirely in the hands of the individual.

Box 1. Beneficiaries of EMS

EMS in agriculture can benefit:

- landholders, particularly those interested in sustainable management of their resources
- producers supplying negotiated contracts
- producers of value-added products
- producers seeking to ensure access to resources, such as water
- producers wishing to demonstrate due diligence in their management of natural resources
- purchasers of land concerned about agricultural resource quality
- suppliers to markets with eco-barriers
- suppliers to markets paying a premium for certified ecolabelled products
- consumers concerned about environmental impacts of agricultural production
- financiers concerned about risk management
- communities and regions seeking improved environmental outcomes
- governments seeking to achieve environmental and trade outcomes in the national interest.

2. Why adopt an EMS?

Adopting an EMS can improve the management of environmental impacts as well as the financial and competitive position of an enterprise. Most Australian primary producers recognise that social, economic and ecological issues all need to be addressed so that their business activities contribute to ecologically sustainable development. EMS provides an overarching management system within which all aspects of the farm business can fit and within which other schemes can be incorporated.

Agricultural industries in Australia currently operate under a range of legislative requirements from all tiers of government, product safety and quality systems, and marketing and branding schemes. The implementation of an EMS provides a means of integrating these many demands on the farm management team, including progressive development and implementation if desired.

The key objectives of EMS reflect elements of the broader environmental concerns of the community. These can be generally grouped into three key drivers for EMS that have already led to numerous existing management initiatives that are beneficial to the environment:

- natural resource management and environmental improvement such as conservation of soil, water, vegetation, and biodiversity
- competitiveness objectives (such as input–output efficiencies, better prices, lower costs, more efficient production)
- social objectives (landholder and community values such as cultural heritage and occupational health and safety matters).

EMS gives Australia the opportunity to capitalise on the ‘clean and green’ image—meeting the requirements of national resource management policy, as well as potentially conferring marketing advantages.

EMS will not instantly catalyse significant environmental improvements in rural landscapes across Australia. Instead it provides a tool for all landholders to demonstrate their responsible land stewardship, setting in train a documented process for identifying and managing key impacts on the environment. It provides a means for capturing the social benefits resulting from recognition of environmental management efforts, leading to a number of intangible but important outcomes associated with the recognition of ‘good’ stewardship.

Box 2. EMS is a powerful tool but no ‘silver bullet’

It is important to recognise both the strengths and the limitations of an EMS. Adopting an EMS alone will not deliver guaranteed environmental outcomes.

EMS is a process standard, specifying a formal step-by-step process without setting externally imposed performance standards. It is not a performance standard, which sets prescriptive outcomes but seldom specifies how these are to be achieved. The National Framework provides a link between on-farm adoption of EMS and the various performance standards that are being set by external parties through other processes, such as catchment targets and national standards for water quality.

An EMS does not establish absolute requirements for environmental performance beyond commitment to compliance with existing legislation and regulations and to continual improvement. An EMS is therefore neither an alternative to regulation nor regulation by stealth. An EMS can be seen as the engine of change, helping managers adapt to meet changing demands placed on their operations by more stringent environmental legislation, evolving pressures from markets, community or industry.

2.1 Key drivers of EMS

2.1.1 *Natural resource management and environmental improvement*

Protecting, maintaining and, where necessary, restoring our natural resources and environment form the basis for sustainable agriculture in Australia. EMS delivers a systematic and comprehensive environmental review and subsequent management planning that can focus and coordinate environmental activities at property, regional and industry scales. This will improve the health of our agricultural ecosystems. EMS implementation ensures that environmental management is integrated with all property and business management, rather than becoming an additional and burdensome afterthought.

Natural resource drivers of environmental management systems include:

- increased health of natural resource systems achieved through coordinated and systematic environmental management at property and regional scales
- access to natural resources such as water and land
- improved on-farm management of risks, including those associated with the environmental impacts of climatic variability (such as erosion events associated with drought and floods) through strategic forward planning and risk management
- growing markets for ecosystem services, such as maintenance of healthy native vegetation.

An EMS assists producers to identify and comply with relevant legislative and voluntary performance targets and standards, such as catchment water quality targets. An EMS can recognise applicable targets, and provide both a means to address them and the evidence required to show that action has been taken to meet these agreed targets. Auditing can provide independent confirmation if desired.

The ability to demonstrate sound stewardship of natural resources through the monitoring and reporting functions of an EMS can help guarantee ongoing access to natural resources such as land and water. In parts of Australia, some form of approval is required before landholders can access a resource. For example, landholders may require an approved land and water management plan before purchasing or trading water allocations. Landholders with an EMS in place would find that they could more readily meet such requirements, having already gone through some form of scrutiny by advisers, experts and interested parties. This can substantially reduce the time, effort and cost involved in consideration of such applications.

2.1.2 *Competitiveness objectives*

Integrating environmental management into all farming activities provides opportunities to reduce the costs of implementing environmental works and complying with environmental regulations. Mining and other industry groups have demonstrated reduced operating costs as a result of the rigorous analysis of business practices undertaken in the development of an EMS. While compliance costs are greater in mining than farming, there are lessons to be learnt about the efficiency gains possible through EMS.

Market signals for environmental assurance in Australia vary across commodity groups, and in some cases they are still extremely weak. Even so, it is expected that in the medium term improved market access could be achieved by producers implementing EMS as a means of demonstrating their commitment to environmental management.

Implementing an EMS may provide a level of protection from prosecution under environmental legislation in some circumstances. For example, under the *Environmental Protection Act 1994* (Qld) and the *Lands Act 1994* (Qld), landholders are required to exercise a duty of care for the land and surrounding environment. The existence of an EMS with its 'plan, do, check, act' cycle demonstrates that this duty of care has been exercised. The *Environmental Protection Act 1994* (Qld) provides landholders with a defence from prosecution under that Act if environmental damage occurred while they were complying with an industry Code of Practice that is approved under the Act. For example, the Queensland Farmers' Federation Environmental Code of Practice for Agriculture is gazetted as an approved code of practice under section 548(1) of the *Environmental Protection Act 1994* (Qld).

Landholders could potentially benefit from:

- improved market access (access to better market opportunities) and greater ability to change management practices to attain minimum performance requirements sought by markets or customers
- improved risk management (production, product safety, marketing, financial and legislative)
- increased production and improved quality from better information generated by the system
- increased net revenue (efficiency gains) from better information generated by the system
- reduced costs from lower government charges (such as reduced licence fees)
- reduced liabilities and lower insurance premiums.

Financiers, investors and insurers are also looking to minimise their exposure to environmental risks. Access to capital and the cost and availability of insurance may increasingly require evidence of sound environmental management. The finance sector is beginning to acknowledge the need to formalise the criteria taken into account when assessing the impact of environmental performance on financial risk. This can be seen in recent work on a sustainability index for the agricultural sector. There is also growing interest in ethical investments that address the community concern for sustainability.

2.1.3 Social objectives

Incentives for adoption may be associated with community approval, and a sense of personal pride and stewardship. Through adoption of an EMS, a landholder can:

- gain enhanced reputation as a responsible environmental manager
- start to meet the growing expectation of compliance with environmental duty of care requirements, including public health
- gain satisfaction from taking action to improve the environment and prevent degradation
- gain confidence in the ability of farm management teams to meet environmental challenges
- recognise the social and economic impacts of poor natural resource management decisions and unsustainable practices
- meet increasing expectation that agricultural production will be sustainable
- establish improved environmental conflict resolution processes
- receive positive community feedback and improved relations with neighbours.

Awards such as the McKell Medal, Farm Environment Awards and Banksia Awards, which publicise good environmental performance, can reinforce community approval, pride and stewardship values.

Ecolabelling and marketing opportunities

While on-farm benefits such as improved efficiencies will lead some landholders to develop an EMS, some will respond more to the chances that market opportunities provide. Capitalising on any such marketing opportunities usually means that landholders seek to advise consumers of quality or environmental assurance through product labels such as ecolabels.

An ecolabel is designed to enable products to be differentiated as more environmentally friendly than other similar products. It is possible, however, to have an ecolabel without an EMS, or an EMS without an ecolabel. To maintain market credibility, an ecolabel needs to be underpinned by a credible process that validates the claims made—a certified and audited EMS could provide that assurance. Furthermore, implementing an EMS might help landholders incorporate the appropriate practices to meet any minimum performance standards that could be required by an ecolabel. In the light of the cost and potential complexity of seeking ISO 14001 certification, producers might want to consider other options that could lead to economic benefits from adopting an EMS.

Adopting an EMS can also bring financial benefits from the following:

- merchant's differentiated brands supported by their market promotion, underpinned by an EMS to provide environmental assurance
- regional labels or promotions claiming to be 'clean and green'

- agricultural resource quality schemes as part of risk management by financial institutions or for real estate transactions
- allocation of stewardship payments, on the basis of EMS
- ecotourism with a market for properties with demonstrated superior natural resource management
- State and Federal governments implementing preferred supplier schemes that give preference to products supplied by landholders able to demonstrate their environmental management credentials.

Case Study: Development of a Tasmanian ecolabel

Marketing trends show increasing demands for evidence of good environmental management. Tasmanian producers, exporters and government are working cooperatively to develop an ecolabel that is backed by an independent audit of agreed elements. Producers are represented by Tasmanian Quality Assured Inc. and the government is represented by the Department of Primary Industries, Water and Environment.

The label is based on elements already in place for QA and food safety. A number of core environmental elements have been identified by reviewing the requirements of international customers and other ecolabels. These elements have been grouped to provide a tiered structure that allows recognition of levels of achievement.

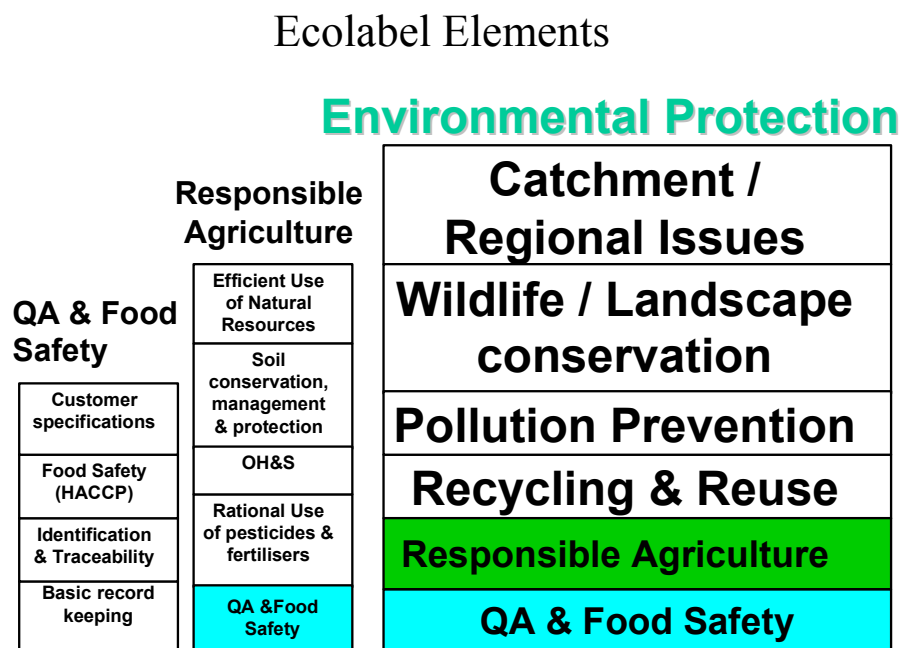
The ecolabel is made up of three tiers as illustrated in the diagram:

Tier 1 – QA and Food Safety requirements

Tier 2 – Tier 1 plus Responsible Agriculture requirements

Tier 3 – Tiers 1 and 2 plus Environment Protection requirements provides a **Tasmanian Ecolabel**.

Figure 2. Elements of an ecolabel



Third-party auditing is required on an annual basis to receive a Responsible Agriculture certificate (see the case study on Tasmanian experience in an international market chain on page 28). Since its introduction in 2000, more than 75 producers have been awarded this certificate. As part of the audit for that certificate, producers also achieved compliance in three of the four additional environmental elements. An additional audit is necessary before obtaining a full ecolabel.

Contact: Jane Lovell, Tasmanian Quality Assured, Tel 03 6331 8223, email lovejane@ozemail.com.au, or Dr Wayne Boucher, Department of Primary Industries Water and Environment, Tel 03 6266 4305, email Wayne.Boucher@dpiwe.tas.gov.au

2.2 Overcoming constraints to adoption of EMS in agriculture

Implementing an EMS requires a commitment of time, labour and money for any enterprise. There is a range of other constraints to adopting and implementing EMS in agriculture, including the availability of environmental information for use in on-farm EMS and assistance with the costs of EMS implementation. Overcoming these constraints will be facilitated by implementation of the National Framework.

Lack of immediate market place benefits

The market benefits from EMS implementation are presently elusive for many agricultural sectors. Markets are dynamic and requirements are driven by retailers responding to perceived consumer demands. Market signals are highly variable across different industries, with little evidence of demand for environmentally friendly production in some bulk commodities. EMS alone is unlikely to fully satisfy some market requirements, such as EUREPGAP, which may require documented evidence of meeting specific performance standards. Nevertheless, in an increasingly global commodity market, there is an advantage for those who operate to an internationally recognised standard. Adopting EMS can help prepare landholders to meet changing requirements but it provides no guarantee of improved market outcomes in the short to medium term. Deriving maximum commercial benefit from EMS may require an on-product logo and an audited chain of custody to enable market differentiation and improved market access. (See Market and supply chain features of the National Framework.)

Size of farm enterprises

Most farms are small business enterprises. This puts them at a disadvantage compared to medium or larger businesses that enjoy economies of scale, access to greater financial resources, and scope for skills specialisation regarding environmental management matters. EMS has so far tended to be implemented by larger businesses in non-agricultural sectors. However, in some cases, less complex businesses have several advantages over large complex organisations when developing EMS. Achieving environmental management on farms continues to be a world-wide challenge and this could be a key determinant of landholder participation. Governments therefore have a role to assist disadvantaged farm businesses to make decisions about the value of EMS in their situation.

Costs of audit and certification

Given the relatively small size of individual farms on a world business scale, the cost in time and money of developing, implementing and certifying a farm EMS can also be an issue. Joint EMS and group certification to reduce the cost to individual producers is being trialed by groups of Australian beef and wool producers. This might provide a useful way forward until market forces make it worthwhile for individual farms to become certified. Australian governments have shown a willingness to consider benefits such as reduced licence fees for producers with EMS to bring forward the positive impacts of implementing EMS. (See role of government.)

Time

The time factor deserves a special mention in relation to the small size and staff numbers of farm businesses. It has been shown that when deciding to change on-farm practices, the most critical question that is asked by landholders is ‘Will it take me more time?’ For this reason, developing EMS as part of existing producer group activities is likely to be one of the most successful approaches for many smaller producers. A phased introduction to ease an enterprise into the EMS approach will also be useful. (See options in Appendix 2.)

Complexity

Many landholders believe that an EMS is too complex, coming on top of a range of other on-farm requirements that take up time and energy. However, an EMS can provide a tool for managing a wide range of requirements in an integrated manner. Moreover, most of the effort is required in the initial adoption phase. Landcare, property management plans, and Best Practice groups have an extensive network of landholder members and would be suitably positioned for the voluntary first step introduction through a broad-based program such as the

environmental BMPs being adopted in Victoria (see case study on page 16). Industry-driven approaches through a tiered implementation of environmental management steps is also proving successful. The wine and grape industry framework that emphasises entry at and progression to any level of complexity is a good example of this (see case study on page 41).

Isolation

Remoteness, changes in social structure of rural communities, and the availability of specialist skills and information on-farm have an impact on every facet of rural life. This is likely to affect the way that innovations such as EMS are introduced compared with industries based in capital cities. Considering the impact of these factors on the farm business and the environment in which it operates are part of the process of developing an EMS.

Lack of baseline environmental information to inform EMS development

The availability of practical and relevant environmental information to landholders can often present a barrier to EMS implementation in agriculture. Often lacking is site-specific, understandable and accessible information on existing legal and regulatory obligations, voluntary environmental Codes of Practice, BMP guidelines and standards, as well as information on environmental risk identification and assessment.

Some notable examples of voluntary codes, guidelines, standards and risk assessment tools already exist in agriculture, and others are being developed. However, there are many primary industry sectors where these remain to be developed. This is especially important for the future development of EMS and related tools to improve the management of the environment in the Australian agricultural context.

Ensuring that information reaches landholders in simple, practical and meaningful ways is a challenge. The amount of information aimed at landholders is immense—including pesticide management, land and water management plans, greenhouse gas emissions, salinity action plans, Codes of Practice and QA programs. Supporting and monitoring landholder actions based on this information will require a dedicated sustained effort from industry, governments and catchment bodies.

As a process standard for a management system, EMS provides a way for a business to more rigorously manage and use information in its management decisions. This will in turn help businesses manage their environmental impacts. The importance of making accurate information available has been recognised during the development of this Framework (Table 1, page 24) as one of the roles of industry and government.

Case Study: Community adoption of Environmental Best Management Practices in South-West Victoria

Some 425 landholders from 23 community catchment groups in the Corangamite and Glenelg-Hopkins catchments will be involved in Local Area Action Plans (LAAPs) for environmental works across their catchment areas. The LAAPs will be drawn up from individual action plans that will be developed on each property using Environmental Best Management Practice (eBMP) tools that have been extensively trialed by landholders in south western Victoria.

How will we do this?

Focus group leaders and facilitators will work with each landholder to develop property action plans using the eBMP worksheets in one-to-one meetings or small group workshops. Each landholder will identify actions to improve their practices across ten major areas of environmental management. These will be prioritised and used to develop an action plan for each property. Individual action plans will be combined in a database and, with the aid of a Geographic Information System, used to develop a LAAP for each community group.

The project will include development of the technical skills that individuals require to implement individual action plans and area plans within catchments. A team of LAAP facilitators will implement this project with the communities across south western Victoria, working closely with a *reference group* of three or four landholders who are involved in each LAAP.

Self-assessment ratings developed by individual landholders will be used to establish benchmarks of environmental management performance across each catchment, and for each catchment group, in relation to some 120 issues that were identified in the eBMP process. Linkages with the *FarmBis* program ensure that the individual action plans are built into the farm business planning process, thus linking together the environmental, social and economic factors.

Expected outcomes

The project will:

- enable individuals to assess their performance in terms of eBMP and to develop a plan of action to improve environmental management on their properties
- enable community groups to develop local action plans from information developed and supplied from landholders through the eBMP process.

Developing Local Area Action Plans will:

- lead to and assist in the implementation of the majority of high priority actions for pest plants, pest animals, native vegetation, sustainable production, salinity, nutrient management, and waterway management
- establish indicators to enable catchments to be compared for a range of important environmental issues in both Catchment Management Authority areas—this will enable the targeting of valuable resources to areas of greatest need
- enable catchment communities to manage natural resources in a more sustainable way by using eBMP and the local area action planning process
- stimulate development of community skills and training in eBMP for the long term protection of catchment environment and natural resources.

Funded through the Natural Heritage Trust and the Natural Resources and Environment Sustainable Agriculture and Land Management program, the project aims to develop individual and community ownership of LAAPs so that communities have a clear understanding and the will to implement them. Property management plans and LAAPs will be linked to catchment-wide strategies through a set of eBMPs. The eBMP process will help landholders make sound management changes on their individual properties and lead to implementation of community driven LAAPs.

Contact: Geoff McFarlane, Project leader. DNRE Geelong Tel 03 5226 4722, email geoff.mcfarlane@nre.vic.gov.au

2.3 Information and training to assist development or implementation of an EMS

Landholders may need additional training and access to appropriate information to develop, implement and maintain an EMS. The provision of such training is seen as an appropriate role for governments in partnership with industry (see Section 6). In fact, strong government and industry support is required to establish and maintain meaningful exchange of information between landholders, industries and governments on natural resource management issues.

Environmental plans need to be practical and easily developed, customised for the landholder's individual issues, and not cumbersome. EMS-related information and training needs include:

Access to natural resource and market data:

- access to natural resource information collected and packaged at an appropriate scale for landholders
- further development of community, catchment or regional natural resource datasets, such as the Herbert Resource Information Centre (HRIC) (<http://ww.hric.org.au/>), and the Desert Uplands Geographic Information System (<http://savanna.ntu.edu.au/reasearch/studies/desupms.html>)
- market intelligence with respect to specific environmental management issues required to meet specific market demands

Access to information about environmental management systems:

- training in access to information
- education activities dealing with EMS principles and processes
- concise information on mandatory legal requirements and agreed goals set in other relevant policies and strategies including national, state, catchment or regional strategies and local environment plans
- reviews or workshops to assist landholders to determine and prioritise environmental effects and set objectives and targets
- readily available publications outlining potential environmental impacts of common farm operations, and methods for minimising such impacts, including consideration of environmental risk while managing in a variable climate and variable market
- determination of appropriate farm-level indicators of sustainability that measure progress towards broader environmental goals

Guidelines

- published guidelines for developing an EMS in a particular jurisdiction, industry or environment
- guidelines to help determine options and appropriate responses for identified environmental objectives. These would include BMP guidelines, training courses (such as ProGraze) and publications dealing with single issues such as determining the rate of lime with which to treat an acid soil

Support services, which may include assistance from:

- information and data brokers
- landholder group facilitators
- rural advisory services and consultants
- EMS specialists and environmental auditors working with agricultural industries.

Box 3. EMS activity in Australia

Many of Australia's agricultural industries are investigating EMS—including the grains, livestock, dairy, wool, rice, sugar, cotton, wine and aquaculture industries, as well as producers of a range of horticultural commodities such as bananas, citrus, tomatoes and potatoes. Some industries with BMPs for priority issues of concern (such as the cotton industry's BMP for pesticide use) or industry Codes of Practice are investigating the merits of moving to a more comprehensive EMS approach that could be certified if desired. EMS in agriculture has strong parallels with arrangements already established in fisheries and forestry, particularly the core principles, criteria and indicators developed for ecologically sustainable forest management under Regional Forest Agreements.

Regional groups in several States are also developing or intending to develop EMS for regional branding or natural resource management purposes. Examples include Gascoyne–Murchison and Blackwood in Western Australia and the Adelaide Hills Wines Region in South Australia. In NSW, Coleambally Irrigation Ltd has obtained ISO 14001 certification to assure the public that it is making every effort to manage scarce water resources in a responsible manner.

In a major project, the Murray–Darling Basin Commission Irrigated Issues Working Group has commissioned an investigation of the feasibility of a certification and audit approach for agriculture in the Murray–Darling Basin.

Box 4. A New Zealand perspective on EMS

The agricultural and horticultural sectors in New Zealand consider that EMS should be primarily market driven and developed by the sector concerned. This ensures that the EMS developed is practicable for landholders, as well as meeting consumer demands.

The government's roles are seen as:

- setting an appropriate regulatory framework
- facilitating networking opportunities to encourage coordination and learning from other sectors
- providing information on, for example, 'green market signals'
- carrying out government-to-government negotiation and assurances where required
- in some cases, providing seed funding for EMS development.

Several sectors have voluntarily developed EMS-type programs, including the dairy industry (Market Focused), the wine grape sector (Sustainable Winegrowing New Zealand), the kiwifruit sector (the KiwiGreen component of the Customer Gateway Programme), and the pipfruit sector (ENZA Way). In some sectors, compliance with the program is a prerequisite for supply to the exporter; in others, adoption is voluntary.

Smaller-scale EMS programs have also been developed in New Zealand. For example, a group of southern North Island wine producers, and a diverse group of primary producers in North Otago, have both achieved group certification to ISO 14001. The New Zealand forest industry has wide adoption of EMS, which has been implemented in conjunction with a performance standard (Forest Stewardship Council certification). Several EMS in New Zealand have been established for some years and are working well.

3. Principles for EMS in Australian Agriculture

The following principles for EMS in agriculture guide the increasing adoption of EMS and aim to underpin the National Framework outlined in Section 4. Agreement on a set of guiding EMS principles is seen as a crucial step towards a common approach that avoids the difficulties that would arise from proliferation of incompatible systems. These principles were endorsed during the public consultation process.

Environmental management systems in agriculture should be:

Voluntary and led by industry and community

An EMS provides a voluntary tool for going beyond compliance. There is no move by Australian governments towards the compulsory development of EMS for agriculture—governments have other means to achieve essential environmental outcomes. The National Framework supports agricultural enterprises, industries and communities that have begun developing their own systems. EMS should be developed by individual industries because they have the best access to information on their production system and its environmental impacts. Furthermore, systems developed in this way—from the ‘grass roots up’ rather than imposed from the ‘top down’—are more likely to be feasible, acceptable to the sector, and widely adopted by producers and industries.

Simple, cost effective, user-friendly, able to be phased in at any level and provide clear advantages to the adopting enterprise

Where available, market drivers provide a powerful incentive for EMS adoption as long as the cost of adoption is low and the benefits sufficiently clear to deliver the right incentives. Furthermore, an EMS should meet market requirements for particular environmental practices or outcomes, even where multiple products such as meat and wool are produced in the same enterprise. EMS is flexible in this regard. It can be applied to a range of issues from a range of different entry levels, with the landholder choosing the entry level that is most worthwhile. Other incentives for adoption may include reduced natural resource management compliance costs, obtaining resource consents more easily, community approval, and a sense of personal pride and stewardship. The latter two may be reinforced by awards such as the McKell Medal and the Farm Environment and Banksia Awards, which publicise good environmental performance.

Able to be combined and integrated with existing business management activities wherever possible

It is essential that an EMS can be readily integrated with other management processes on-farm to avoid duplication. This requires the development of simple, robust systems that fit well with other management practices such as health and safety and animal welfare. Many landholders already have in place existing business management practices that incorporate property management planning, QA, or other systems that meet market requirements. Some of these include aspects of environmental management. An EMS adds value to existing systems by providing a holistic approach to identifying environmental impacts that are not formally considered in the existing management practices and incorporating them into an inclusive management system.

Able to demonstrate links between competitiveness and natural resource management outcomes

EMS in agriculture should be:

- able to support strategic plans and initiatives associated with the pursuit of natural resource management outcomes, rewarding progress that goes beyond minimum standards
- compatible with and, where appropriate, reinforce and avoid compromising market initiatives and emerging market opportunities.

This means that an on-farm EMS should be designed to contribute to and comply with existing targets set under regional and catchment plans. Success in achieving improved natural resource outcomes through a credible systems approach then has potential for improved marketing and competitiveness.

Adaptable and provide for continuous improvement

Resource users and markets are innovative in a rapidly changing environment. Landholders in Australia produce a wide range of goods under different farming systems in diverse environments. Market trends are dynamic and trading arrangements change. For these reasons, EMS must be flexible and achieve continuous improvement through adaptive management.

Consistent with existing internationally recognised systems (such as the ISO 14000 series) and be capable of independent audit

There are several possible approaches to improving environmental management on farms. ISO 14001 is the internationally recognised standard for EMS that can be integrated with existing management activities such as property management planning, BMPs, and QA. Independent audit is a characteristic of such standards and makes them credible to consumers and other sectors. The decision to be audited and certified is voluntary and will be driven by industry and market needs.

4. The National Framework

The National Framework for EMS in Agriculture was developed to provide a national context within which existing industry programs and growing interest in EMS can be harnessed to improve management and contribute to both market and environmental outcomes across industries and regions. The Framework is also designed to help landholders and others without an immediate interest in EMS to learn more about evolving environmental priorities and requirements and facilitate coordinated responses.

By defining roles across the board, the National Framework provides a context for coordinating and facilitating the wide range of voluntary, industry- and community-led approaches to environmental and quality management in agriculture. It also helps to improve integration of these activities across different scales and across industry sectors. It aims to support individual landholders who wish to make a significant contribution to improving the sustainability of agricultural production and meeting community expectations of environmental, social, and economic outcomes.

EMS is only one of many ways of improving our environmental performance. Farms vary greatly in size and complexity, in environmental awareness, styles of management, and financial resources. The National Framework for EMS recognises the diversity in the agriculture sector and provides a means to better integrate industry activities with broader natural resource management processes such as state and regional planning for vegetation management.

Rural industry recognition of the need to position its members to meet the diversity of environmental challenges is reflected in the growing level of industry activity in the area of environmental assurance. Australian rural sectors need to position themselves well in international trade to maintain or enhance market access, in the context of World Trade Organisation rules and increasing consumer demand for environmentally friendly production. Governments are willing to provide support to assist landholders to voluntarily adopt the EMS as a tool to help industry to meet changing requirements—whether set by legislation, markets or community pressure.

4.1 Aims of the National Framework for EMS in agriculture

The National Framework provides a context for environmental management of agriculture at all scales—from the individual farm through to a national scale. It recognises and seeks to add value to other land management systems that aim to improve sustainability.

The National Framework for EMS:

- provides contexts for environmental improvements on farms, and within industries, catchments, and regions
- encourages voluntary adoption of EMS
- promotes a consistent approach to EMS in Australia
- encourages links between management actions taken by landholders and environmental outcomes set at regional and catchment scales
- encourages links along supply chains to improve trade and market access outcomes from improved on-farm natural resource management
- identifies the need for governments to coordinate their support roles across states and territories, national and international boundaries.

The Framework is designed to provide consistent messages through the different industry and spatial scales and contribute to environmental, social and economic outcomes for all stakeholders. It will facilitate better information flows and improve integration between management actions by enterprises and industries and ecological processes at the landscape, catchment and regional scales. By acting as a bridge between on-farm EMS and the emerging initiatives for managing and reporting on natural resource management, it is envisaged that farm-level EMS will benefit from government and community investment in catchment level action. The potential for landholders to harness EMS as a tool to help achieve landscape outcomes is enormous. It will contribute to meeting natural resource management targets set at catchment and regional levels through agreed processes such as the National Action Plan for Salinity and Water Quality, and State vegetation or biodiversity plans.

The Framework promotes the voluntary adoption of EMS. It is relevant to all landholders, even if they have no EMS in place. It is designed to provide assistance to all landholders across Australia, regardless of their current level of engagement with environmental management issues. The EMS National Framework set out in Table 1 provides a guide or a roadmap to the sources of information needed to inform the development of an EMS.

An EMS may be augmented by the availability of standards and targets, such as those being set by overseas markets, by industry groups or by regional catchment groups. The National Framework itself is not the place for performance standards or targets, nor does it attempt to set them. Instead it provides a mechanism through which all stakeholders should be able to find out which standards and targets are relevant to their operations in their particular industries and regions. It is expected, for example, that targets set through regional and catchment planning processes will inform the setting of on-farm targets in an EMS.

The key challenge for the Framework is to reduce rather than add to the complexity surrounding environmental management issues. The value of the National Framework lies in improving the efficiency of on-farm resource use and the sustainability of agricultural production, while helping landholders meet evolving challenges of competing community and market demands.

4.1.1 Outcomes sought by governments in promoting EMS and the National Framework

The outcomes sought by government from voluntary adoption of EMS and implementation of the National Framework include:

- *harmonised government policies related to EMS*
- *national coordination for EMS initiatives*
- *improved understanding of the roles and responsibilities of all parties*
- *improved environmental and natural resource management*—including more efficient resource use, better protection/management of biodiversity, and reduced flows of chemical off farms and into water catchments
- *development of a consistent approach to EMS in Australia and provision of consistent information on EMS*—to prevent proliferation of inconsistent and incompatible systems
- *improved competitiveness and economic development through enhanced market access and stronger rural communities*—interest in EMS in several Australian states has been stimulated by the emergence of ‘green’ trade barriers in overseas markets and increasing global retailer demands for environmental assurance
- *less need for regulation and conflict management*—landholders are increasingly concerned about restrictions and pressures imposed on agriculture by neighbours and the community. EMS, as a pro-active step in self-regulation, could be seen as an alternative approach to further legislation. Industry-led interest in EMS overseas has also been stimulated by threat of stricter environmental regulation and by community-led lawsuits against environmentally irresponsible companies
- *maintenance of health and safety standards*—regulations for key health and safety issues tend to set minimum standards. There is potential for the EMS to provide an integrated management tool to simplify management tasks and deliver better outcomes in some situations.

4.2 The scope of the National Framework for EMS

Table 1 summarises the National Framework for developing EMS in agriculture. The scope of the Framework primarily reflects impacts on the environment and economic benefits resulting from more efficient input and waste management. However, the Framework can be readily extended to reflect the growing expectation for reporting against environmental, social and economic criteria. This broad scope is consistent with the international standard for EMS—ISO 14001. It is important to realise that the Framework has been designed to be useful and applicable to all landholders interested in improving their environmental management. It is not limited to those already engaged in implementing an EMS.

The Framework supports EMS developments at different scales and in different organisations, ranging across individual farms, both single and mixed enterprises; whole industry sectors; input suppliers; water utilities; processors; wholesalers; and retailers. It provides a common approach for informing and coordinating management across different land tenures and land uses (forests, national parks, agriculture) and it is compatible with existing frameworks for ecologically sustainable forest management and EMS in fisheries.

Agriculture is not the only activity interacting with the environment within a region, and agricultural sustainability can be affected by the activities of other enterprises. Encouraging appropriate linkages with existing supply-chains will maximise the opportunity to obtain the trade and market advantages than can be realised from improvements in natural resource management (see section 4.3). An EMS may also cover non-agricultural enterprises on the property, such as tourism, in which case the importance of cultural, heritage, and occupational health and safety considerations may become more important. The National Framework can provide a mechanism for promoting understanding and dialogue about culturally significant areas, as well as improving management across all land tenures.

4.2.1 Process versus performance standards

This National Framework does not set or require additional performance standards for landholders. Instead, it provides a context for the voluntary use of a process standard called EMS, where a continuous improvement cycle provides a systematic approach that landholders can use for identifying their environmental priorities and improving their management over time. The Framework provides a map to various relevant existing and emerging performance standards being set by communities markets and governments. These performance standards include government regulation for environmental protection, catchment targets for natural resource management issues developed through the National Action Plan for Salinity and Water Quality and the Natural Heritage Trust, and evolving demands imposed by various commodity markets.

Figure 3 sets out how the National Framework might work from the perspective of a multiple-enterprise landholder.

Figure 3. National Framework from the perspective of a multi-enterprise landholder

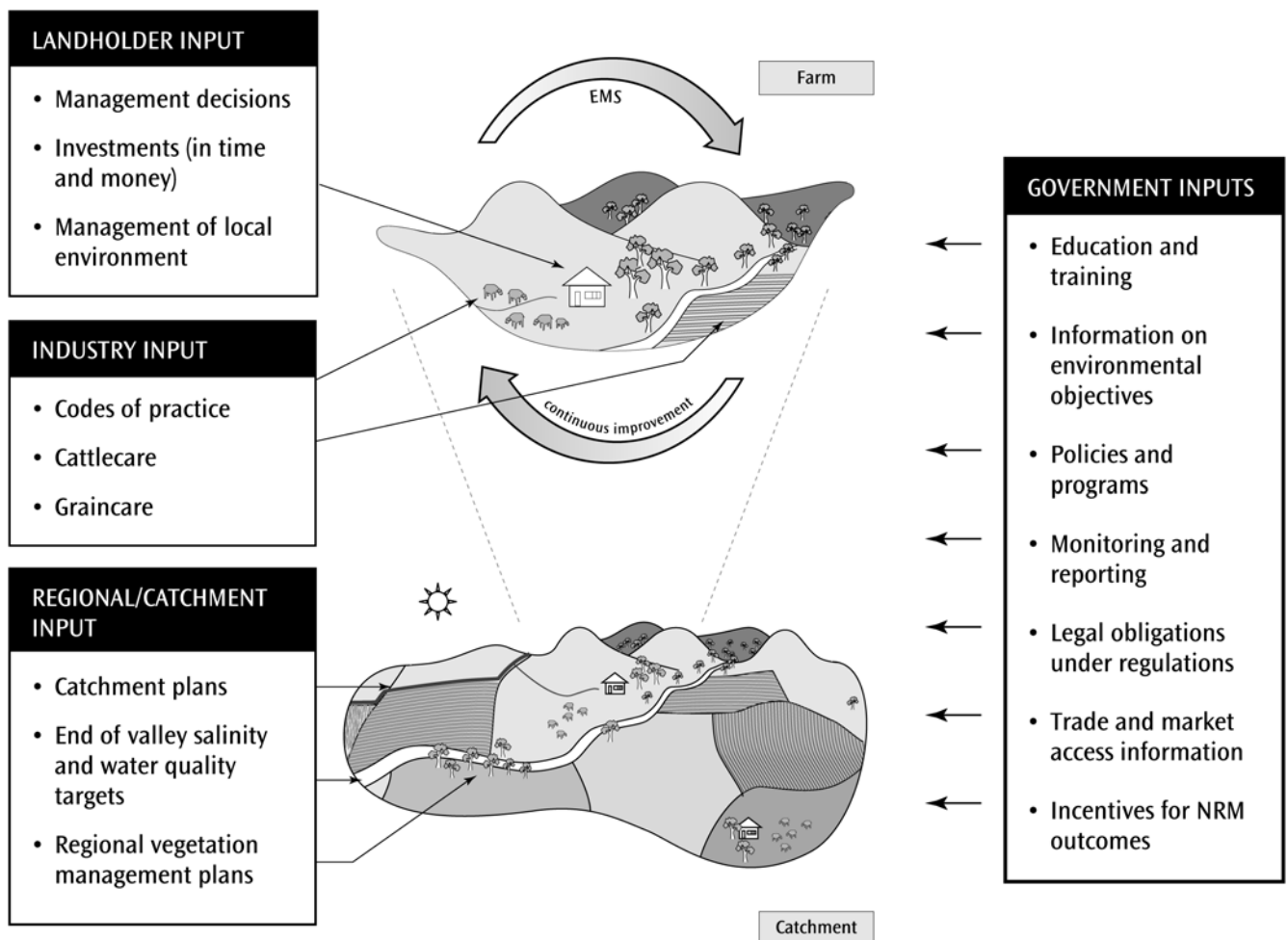


Table 1. National Framework for environmental management systems (EMS) in agriculture

Management Framework Scale	POLICY			PLAN		DO		CHECK		REVIEW	
	Institutional arrangements Policies and legislation	Planning Natural resource inventory and Setting of targets, standards, performance measures	Implementation Application of Codes of Practice, BMP, Capacity to implement action identified in EMS	Monitoring and Evaluation Management performance and trends in resource condition against targets	Act Internal review of management performance Search for improvement						
FARM or ENTERPRISE	Decision/commitment on entry or progress to EMS at a level appropriate to the business	Assess site condition and environmental management performance. Implement property management plans or whole farm plans etc. Establish objectives, targets and identify actions	Comply with law. Follow Guidelines, Codes of Practice and BMP as appropriate	Keep records of management actions and monitor progress against targets If appropriate, seek independent audit	Regular review to ensure efforts are achieving progress to sustainability, better environment, efficient business, and etc.						
INDUSTRY	Industry policies and requirements—including component of training/extension to support adoption	Specific production or marketing plans	Guidelines according to industry sector and scale. BMP for specific activities, e.g. fertiliser use	Monitor industry progress in implementing systematic environmental management approaches and achieving regional or catchment objectives	Review and revise industry policies and plans to reflect the changing needs of the industry, community and environment						
CATCHMENT /REGIONAL	Catchment/regional policies and regulations	Catchment/regional plans including targets, indicators and performance measures (may be accredited through the National Action Plan for Salinity and Water Quality, Natural Heritage Trust and/or State processes)	Regional and local guidelines according to catchment management actions. BMP for specific activities, e.g. fertiliser use and chemical use	Monitor and report on environmental values, regional performance and socio-economic change against indicators relevant to each catchment/region (State of the Environment, agri-indicators etc.) Time scales relevant to activities monitored to be determined Monitor management practices (performance) to verify continual improvement	Review and revise regional policies and plans to reflect the changing needs of the community and environment. Report on environmental conditions (State of the Environment reporting, etc) and practices on the land						
LOCAL	Local government policies and regulation	Local planning guidelines and local environment plans	Range of activities, including local guidelines for development control	Monitor environmental conditions and development patterns in local government areas	Review and revise local government policies and plans to reflect the changing needs of the community and environment						
STATE	State policies and regulations On-ground natural resource management responsibilities	State plans, targets, indicators, performance measures	Information Education Coordination and Facilitation	Monitor State activity in EMS and State of the Environment reporting against state-level indicators	Review and revise State policies, plans and legislation to reflect the needs of the people and the environment of the State						
NATIONAL	National policies and legislation; international market access and agreements Broad national policy-setting responsibilities	National policies, standards and indicators and international agreements	Information Education Coordination and Facilitation International Relations	Monitor Commonwealth activity in EMS, State of Environment reporting, national indicators and international relations	Review and revise Commonwealth policies, plans and legislation to reflect national interests and international obligations						

During the initial consultation process, some stakeholders found it helped their understanding of the National Framework to see an example of an environment management framework at a scale similar to their own experience. Appendix 2 provides a model example from the viticulture industry, which enables producers to assess where they are currently situated and the requirements of different levels of commitment to environmental management and different market expectations. This phased approach encourages continuous improvement by identifying manageable incremental steps. The example illustrates that the management framework is similar at government, catchment or enterprise level.

4.3 Market and supply-chain features of EMS for agriculture

The National Framework incorporates the vertical integration of EMS. This is the suite of mechanisms and institutional arrangements that focus on the role of industry in producing agricultural products and services that flow to the consumer through a supply-chain comprised of various processing, distribution and marketing activities. The Framework can apply beyond landholders to the whole supply chain—including suppliers of farm inputs such as pesticides, fertilisers and irrigation water, as well as the businesses that transport, process and market primary products. Processors are likely to be an important group of EMS adopters, because they can capture market advantage for processed goods through green branding and promotion. It is also probable that processors will increasingly insist that their raw material suppliers implement EMS. They might even specify requirements for audit and certification. This perspective is summarised in Figure 4.

There is an increasing worldwide consumer demand for food, fibre and energy products that are produced by environmentally friendly processes. Retailers and suppliers are extremely sensitive to consumer sentiment, and will quickly demand appropriate products. Certified EMS can provide robust evidence to back-up environmental assurances, and can be a powerful means of maintaining access to markets demanding environmentally friendly products. In this way producers can maximise the opportunity to obtain the trade and market advantages from efforts to improve natural resource management.

Ideally, and for maximum credibility, all levels in the supply chain should establish their own EMS, not just the farm. In most cases an EMS will be influenced by a range of regulatory requirements and a variety of catchment management and regional plans.

One benefit of a regional approach to environmental management is the opportunity to seek consumer recognition. The potential for market gains from EMS adoption may be enhanced if regional coalitions form to pursue and promote the advantages of produce from a particular region. There is growing interest in the potential of regional branding for achieving product differentiation and market advantages—a strategy well-known to those familiar with wine appellation districts. However, at this time, under the *Export Control Act 1982* (Cwlth), prescribed goods cannot carry any labelling claim that has a geographical reference.

There is an imperative for being able to substantiate any claims being made, requiring a capacity to monitor progress in achieving environmental outcomes. The monitoring and review process within an EMS provides a framework for this.

A major challenge for the Australian agribusiness supply chain relates to the:

- provision of a consistent approach to identify and manage risk-assessment and environmental impacts
- need for all key stakeholders in the supply chain to engage in the risk-assessment and environmental management process
- consistent development of monitoring and audit assessment, to enable performance benchmarking and evaluation.

Figure 4. Supply chain links in the National Framework

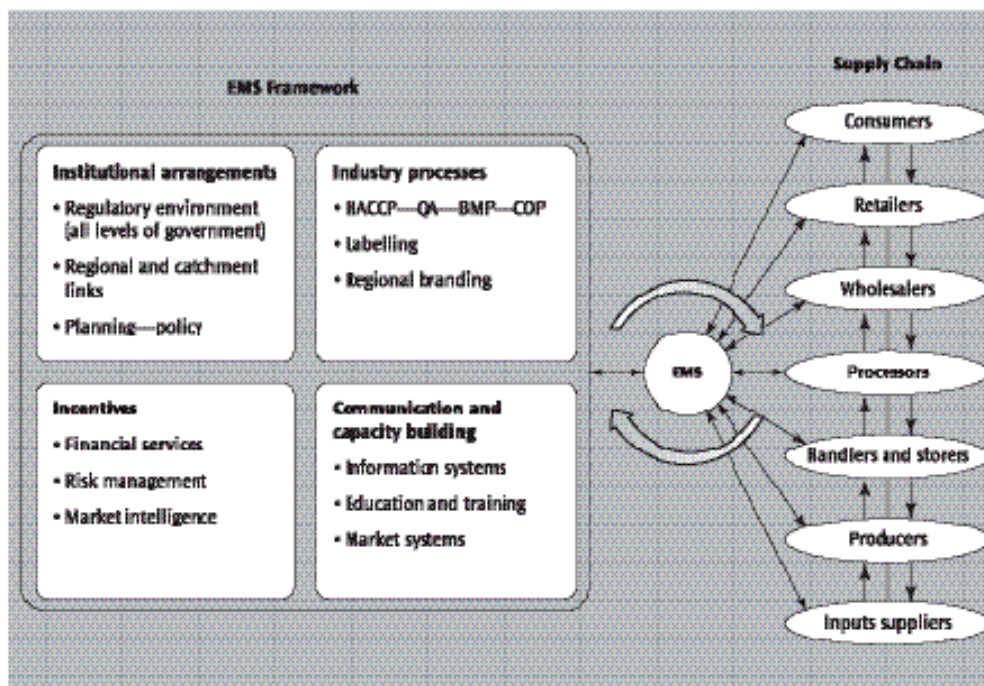


Figure 3. Supply-chain links in the framework, illustrating that EMS can be involved at all levels of industry.

4.3.1 National Food Industry Strategy

The National Framework will facilitate linkages with the emerging National Food Industry Strategy being developed by industries through an industry–government partnership. In seeking to develop whole-of-chain solutions to environmental problems, the Strategy aims to encourage the development of a sustainable, globally competitive Australian food industry with environmental sustainability as one of the four key areas for action. There are synergies between the Strategy and the National Framework. For example, EMS Supply-Chain Projects will provide case studies that help demonstrate the commercial benefits of EMS and encourage a market-based approach for environmental management.

The Environmental Sustainability element of the National Food Industry Strategy states that industry will have to achieve standards that go beyond compliance with minimum government regulation if it is to become environmentally sustainable in the long term. The Strategy supports the use of eco-efficiency tools and concepts like EMS and public environmental reporting, as well as seeing that industry can reduce costs, ensure access to adequate resources, and become more internationally competitive by maximising resource use efficiency. Under the Strategy, industries have agreed to develop regular and systematic reporting of environmental performance by producers and companies operating throughout the food chain to deliver net reduction in per unit environmental impact of the food production process. They have also stated that they will continue to implement market-based approaches to through-chain environmental management by way of initiatives in areas such as waste management, recycling and energy conservation, including the National Packaging covenant. Governments, on their part, have agreed to encourage the food industry to include natural resource management (including biodiversity and land and water conservation) and to produce public reports on their environmental performance.

Box 5. Advice for Australian growers wishing to improve market access

In a recent market analysis the Western Australian Department of Agriculture surveyed major trading partners in the USA, Europe, the Middle East, Indonesia, China, India, Malaysia, Japan, Singapore and Taiwan. While quality and price are still primary factors considered by the market place, environmental issues are emerging as a point of differentiation. Some 45 per cent of those surveyed were influenced by environmental factors, with key issues being soil, chemicals, genetically modified organisms, and biodiversity. Retailers are also driving change, notably through the EUREP good agricultural practice (GAP) protocol that requires compliance with guidelines on a wide variety of production practices.

As a minimum, growers should demonstrate that their existing schemes are equivalent to what is being demanded by the retail sector, namely:

- a food safety system based on hazard analysis and critical control point (HACCP) or equivalent
- QA to meet the technical specifications of the market
- sourcing of farm products from producers who can demonstrate compliance with legislation—safe and legal use of pesticides, medicines and farm chemicals plus compliance with environmental, animal welfare and employment legislation.

Sources: ‘Safety on the Shelf—The impacts of global retailers’ safety and quality requirements on Australian food exporters’, AFFA 2002; and ‘Environmental Accreditation System Market Analysis Project’, Department of Agriculture Western Australia, 2000.

4.4 The international scale

EMS could also have a role to play in enhancing Australia’s trading position. There is increasing evidence that some type of production certification might become necessary to ensure rural industries can meet international requirements to maintain, if not enhance, market access for commodities.

International agreements relevant to EMS in agriculture include agreements reached under the World Trade Organization, Agenda 21, the Convention on Biodiversity, the Montreal Protocol on Ozone Depleting Substances and the Kyoto Protocol. For example, EMS adoption would be facilitated by provision of up-to-date information on international progress on EMS in agriculture. Decisions-making would also be better informed by access to information about improving the sustainability of existing farming systems, reducing environmental impacts of activities such as pesticide use, conserving water quality and biodiversity, meeting international trade and market access requirements, and addressing human health and safety concerns. Governments have an important role in ensuring that Australia’s EMS initiatives are internationally credible and consistent with global community demands and overseas developments. The National Framework facilitates the flow of information on all these matters.

Box 6. Overseas EMS activities

The international community is moving into a phase in which certification of minimal impact of agricultural production on the environment may become as important as evidence of low chemical-residue status or other quality attributes. Interest in agricultural EMS is also increasing rapidly in Europe, North America and parts of East Asia. Increasing domestic and international interest in EMS reflects rising consumer demand for products derived through environmentally friendly production processes.

In the United States the multi-state working group on EMS is considering the role of EMS in agriculture. There are moves to set up PEER centres in several States to provide advice on EMS adoption. Other approaches being applied to agricultural management include a European Union regulation, EMAS (Eco-management and Audit Scheme); self-assessment and action plan programs such as the UK LEAF Program (Linking Environment And Farming); the Ontario Environmental Farm Plan; and the US Farm*A*Syst Program. In addition, there is increasingly widespread adoption of industry BMPs and Codes of Practice related to environmental management.

Case Study: Tasmanian experiences in an international market chain

European supermarkets are progressively requiring increased environmental management reporting as a condition of purchasing fresh produce from their suppliers. International suppliers are required to conform to the same requirements as those demanded of the UK and European growers.

In 1999–2000 Field Fresh Tasmania, onion suppliers to the UK Tesco's supermarket, were required to meet the Nature's Choice Code of Practice implemented by that supermarket. Tesco would accept only produce certified to the Nature's Choice label that incorporated QA and EMS requirements. Previously there had been no market specifications for on-farm QA or environmental conditions beyond Tasmanian legal requirements.

Field Fresh Tasmania, in association with government, decided to use these new requirements as a pilot project to scope the implementation of a QA–EMS scheme into an industry and on-farm.

The requirements of Nature's Choice included implementation and assessment in seven key areas, covering food safety and human health issues with additional requirements for soil and water management, efficient use of resources, and evidence of active management for wildlife and landscape conservation and enhancement. The addition of a nature conservation component was the first instance in Tasmania where active management was a mandatory component for an agricultural export market.

A combined facilitation plan was developed with several private businesses and State Agencies, and funding obtained from Federal and State Agencies. A premium for growers that received certification was paid by Field Fresh Tasmania for the first year to attract growers to participate in the scheme and assist with the extra costs associated with the implementation. The premium was offered to growers for early adoption and applied for the first year only. This was dropped in the following season, but was introduced by Field Fresh Tasmania in a modified form during 2001–2002 for three years and includes paying for annual audit fees for growers who retain certification. It should be noted that no premiums are being obtained in the marketplace: certification remains a condition of doing business with Tesco.

Sixty-five of the initial eighty growers were granted a Certificate of Responsible Agriculture in 2000. The majority of producers had a maximum six months to document their management system and implement changes to meet market requirements before the initial audit. Problems that were encountered with implementation of this scheme were largely overcome. The financial incentive for certification did not continue in the next season so the majority of growers did not maintain their certification. However, they have positioned themselves so that when market requirements arise in future they will be able to reapply for certification and gain market access. Many growers found the original process of certification had ancillary benefits such as reduced insurance premiums, and improved safety and environmental conditions on-farm. The process also tended to fit within their view of how they wished their farm to operate.

Contact: Dr Jason Dennis, Field Fresh Tasmania, Tel number 03 6428 3555

Case Study: EUREPGAP implementation in Australian—Mildura table grapes

EUREPGAP describes itself as the ‘global partnership for safe and sustainable agriculture’ (see their website at <http://www.eurep.org>).

It began in 1997 as an initiative of retailers belonging to the Euro-Retailer Produce Working Group (EUREP). Their aim was to agree on standards and procedures for development of good agricultural practice (GAP). The outcome is a very robust and challenging protocol which focuses the producer on the key issues that need to be addressed during the pre-farm gate stage.

EUREPGAP has three key drivers:

- the desire to reassure consumers, principally on issues of **food safety**
- the triple bottom line—economic, social and environmental. According to EUREPGAP, consumers entering a store don’t often think about these issues, but they wouldn’t expect to purchase something from a company that was directly degrading the **environment** or disrespecting their **workers**
- **good agricultural practice** based on HACCP principles. By interfacing with packing and transport, it seeks to provide a whole of chain assurance.

EUREPGAP’s membership includes 22 of the main UK and European retailers. As a group of table grape growers in Mildura can testify, Australian agribusiness selling into Europe cannot ignore EUREPGAP.

These growers supply Ausfresh, a Melbourne based fresh produce exporter. Ausfresh have programmed supply arrangements with Sainsbury’s (a major supermarket chain in the UK). Under the supply program, specifications, quantities and price are agreed well in advance of harvest. The grapes are sent to the UK by sea freight in refrigerated containers—normally taking 45 days from picking to retail sale. As a fresh highly perishable product, the systems for maintaining and controlling quality need to be stringently applied.

Through their UK importer Redbridge Holdings, Sainsbury’s are moving to require their global suppliers to be certified to EUREPGAP, a mandated requirement by 2004 in the case of table grapes.

With many unknowns, and no Australian businesses with certification to learn from, the Ausgrape vineyard has been implementing EUREPGAP in preparation for their audit. Part of the process has involved a forms based record keeping and traceability system developed by Graeme Forsythe & Associates.

The audit group, Certenz (a subsidiary of AgriQuality New Zealand Limited) has been engaged to audit, as the only group in our region with the necessary accreditation. After achieving certification, the Ausgrape experience will be invaluable for other Ausfresh growers starting on their certification journey.

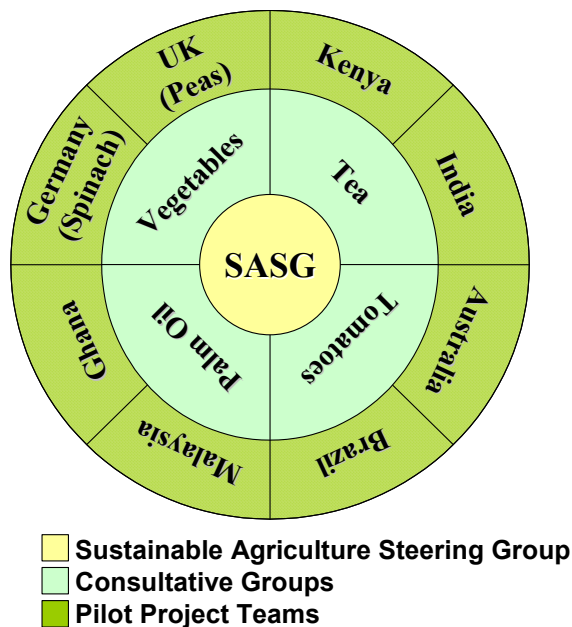
Is it worthwhile? According to Max Tolson, a Mildura based practitioner who has assisted with the implementation, EUREPGAP is a ‘ticket to trade’ that requires the grower to follow practices that any serious business would satisfy in their normal operations. With competitors such as Chile now moving to have whole industries compliant with EUREPGAP, and European retailers moving into the Asian markets that Australia has concentrated on, there is little room for Australian growers to be complacent. If it isn’t EUREPGAP, it will certainly be something equivalent.

Contact: Graeme Forsythe, Graeme Forsythe & Associates Pty Ltd, Tel 02 9874 1009 or 0409 691 345

Case Study: Unilever Project on EMS and processing tomatoes in Australia

Unilever is one of the largest consumer goods businesses in the world. Agriculture provides more than three-quarters of the raw materials for Unilever's branded products.

Figure 5. Unilever pilot sustainable agriculture projects



In 1995 Unilever embarked on a major Sustainable Agriculture Initiative to develop guidelines for sustainable farming practices that will ensure continued access to their key raw materials. In January 2000 Unilever Australasia and Horticulture Australia began a unique research partnership to identify the environmental impacts of growing processing tomatoes in Australia, an important commodity for the Tatura food processing plant in Victoria.

The Australian research is one of fourteen Unilever pilot projects underway globally to identify a monitoring system, sustainable farming guidelines and BMPs for production of key crops important to Unilever's food processing operations (and other rotation crops).

The on-farm EMS under development on five processing tomato properties will link with existing environmental management and quality assured systems at their processing plants, providing a QA system from farm gate to factory and

beyond. Unilever's research takes the first step toward resolving a Sustainable Agricultural System for processing tomatoes which:

- produces crops with high yields and nutritional quality to meet existing and future needs while keeping resource inputs as low as possible
- ensures that any adverse effects on soil fertility, water and air quality, and biodiversity from agricultural activities are minimised and positive contributions are made where possible
- optimises the use of renewable resources while minimising the use of non-renewable resources
- enables neighbouring communities to protect and improve their wellbeing and environments.

Sustainable Indicator Framework

This initiative has a strong focus on environmental assessment and on-farm sustainability indicator development to ensure that a practical EMS based on ISO14001 is developed and that the environmental performance and improvements to the Unilever supply chain are measurable and transparent. Given the challenges of quantifying sustainability in practical terms, Unilever have elected to consider and where possible measure environmental impacts associated with the following indicators:

- | | | |
|-------------------------|-------------------|------------------------|
| • soil fertility/health | • pest management | • energy |
| • soil loss | • biodiversity | • water |
| • nutrients | • product value | • social/human capital |
| | | • local economy |

Next steps for the Sustainable Agriculture Initiative

Workshops have developed a 'Roadmap' for implementing the Unilever initiative. Unilever growers identified one key for successful adoption of sustainability principles and EMS on farm as market recognition and preference for sustainably produced goods. Understanding market drivers and factors influencing sustainably produced food produce is currently under review.

Source: 'From Granulock™ to Five Brothers™, Environmentally—The emergence of EMS in the agribusiness supply chain.' Ballina Paper by Jamie McMaster, Outsourced Environmental, Tel 03 9761 0204, email jamie.mcmaster@outsourcedenvironmental.com.au

4.5 Monitoring and evaluation of progress under the National Framework

More stringent assessment of the environmental impacts of agriculture has focused renewed attention on the need to monitor and evaluate trends in resource condition—by governments and land managers.

Natural resource management programs such as the National Action Plan for Salinity and Water Quality and the Natural Heritage Trust are expected to deliver tangible benefits that need to be monitored and evaluated by governments. Performance indicators developed through these and other programs will be a key element in assessing Australia's progress towards sustainable natural resource use.

The National Framework for EMS is planned as one potentially important tool in delivering farm-level actions that will contribute towards the natural resource management broad goals and objectives of these programs. In addition, the EMS Incentives Program and the EMS Regional Pilots Program will be evaluated in terms of the capacity of EMS to deliver positive natural resource management outcomes and in terms of the effectiveness of these programs in supporting EMS adoption on the ground.

There will be a review of the National Framework in five years' time and progress on its implementation will be reported biennially (that is every two years).

4.5.1 Indicators for monitoring progress over time

The full value of the EMS as a management tool will be realised only if its adoption occurs within a framework that provides the means of tracking progress over time. Indicators capable of capturing and monitoring trends in resource condition are required at the local, regional and catchment scales. Indicators are also required at the farm scale to track changes and improvements in agricultural practice. Development of such indicators and methods for monitoring and reporting against them should be informed by existing expertise on sustainability indicators. This includes relevant work being carried out through the National Collaborative Project for Indicators of Sustainable Agriculture, the National Land and Water Resources Audit, Montreal Process forestry indicators, State of the Environment, and Headline indicators, among others.

5. Linkages

As a systems approach, an EMS can be readily integrated with other on-farm management processes and records that landholders may already maintain, such as financial accounts, food safety, occupational health and safety, and QA. In fact EMS can help integrate them. Typical family farms do not have the management resources to implement complex systems, and even large farms will be seeking management systems that avoid duplication. EMS is a staged approach, in which a landholder can gradually implement an EMS and still accomplish environmental improvements.

EMS is designed as a process standard. It works best when it is combined with and integrates relevant information or specific performance guidelines, standards and benchmarks tailored to the industry and enterprise in question, including those specified in BMPs and Codes of Practice where they exist.

A major aim of the National Framework is to develop mechanisms and partnerships that will create effective links between EMS and other activities. Both vertical (industry – supply chain) and horizontal (cross-industry – landscape) linkages are essential to the achievement of effective outcomes. This integrated and complementary approach will enhance the potential to improve management across industries and regions, thereby achieving environmental and competitiveness outcomes for agriculture.

5.1 How does an EMS link with other on-farm environmental activities?

The environmental review stage of an EMS involves identifying environmental values and impacts of activities—ranging from impacts on water quality and salinity, managing streambanks and catchment health, through to more complex and broader scale issues such as biodiversity conservation, greenhouse gas emissions, and broad landscape outcomes. It is essential that data are adequate at the farm scale, for any issue. Where relevant information is not available, good communication between landholders and regional or catchment planning authorities will ensure that an EMS covers issues that are important to local and global communities. Governments have a role in providing information on different environmental issues so that landholders can make sound decisions on priority issues and manage these in an integrated manner.

Property management plans or whole farm plans are valuable precursors to EMS, providing a systematic overview of many environmental issues of importance to landholders. A whole farm plan, for example, can become an intrinsic part of an EMS, providing a management tool and documentation of steps taken to identify issues identified as priorities on that property. Regional priorities can also be gradually incorporated into an on-farm EMS, because it provides the management framework that can address multiple environmental issues.

Several industries and regions have developed BMPs for environmental issues (see case studies on the cotton industry and the use of environmental BMPs in Victoria). Again these provide a very valuable platform that can readily evolve into a systems approach to managing the environment. Past BMP approaches have been limited in time and space, so BMP manuals can need reworking to remain relevant in different areas or over time. The generic identification of issues and planning methods for dealing with them are valuable building blocks that can be brought into the EMS continuous improvement cycle.

5.2 How does an EMS link with other on-farm management or record-keeping processes?

There is the potential to cross-link work carried out for one scheme to fully or partially meet requirements of another. Actions taken to implement BMPs, Codes of Practice and various QA schemes are compatible with activities undertaken in an EMS.

For example, the ‘–care’ series of QA schemes (Graincare, CATTLECARE, Flockcare, Freshcare, etc.) essentially provide an auditable code of practice for specific industry sectors. They contain modules that are common across several commodity groups (such as Management and Chemicals modules). They also contain additional modules that relate to enterprise-specific issues such as livestock management or grain production. While these schemes can deal with issues that affect the environment, such as fertiliser and pesticide use, they

are primarily geared to addressing on-farm food and feed safety risks, with optional elements for addressing additional customer requirements.

In practical terms, this means that documentation and spray records kept to meet the requirements of a QA system, such as Cattlecare or Graincare, could go part way to meeting the needs of a systems approach like EMS that considers all environmental impacts arising from chemical use and storage on a property.

“I did my EMS first, then looked at certification under Graincare and Cattlecare. The main elements of the systems were compatible and already picked up in the EMS, although some of the requirements for recording and site details differed. Three weeks after I’d done the EMS it took me only four hours to change the manual to comply with Cattlecare and Graincare requirements.” Mixed enterprise farmer with certification to ISO 14001, Graincare and Cattlecare

The Safe Quality Food system, SQF 2000, was developed in 1995 in Western Australia and is now globally managed by the SQF Institute in Switzerland. SQF 2000 is a QA scheme that took elements of ISO 9000 and included independent auditing and the food safety management tool, HACCP, which is now a standard requirement for international food safety. There are many parallels between HACCP and EMS, since both are processes that involve landholders learning the basic elements of risk assessment and management on-farm. The key difference is that HACCP focuses primarily on food safety hazards as they occur through the production cycle while an EMS looks across the whole spectrum of activities on farm and provides a means for reducing environmental impacts and improving production efficiencies across the board.

QA and food safety schemes might not satisfy emerging market demands for evidence of sustainable production. However, under the Framework, there is nothing to stop individuals beginning with a QA scheme already in place and deciding over time whether they wish to move into a systems approach such as EMS. Options for integrating existing QA approaches with EMS are being developed by several industries around Australia. For those with an ISO 9000 Quality Management System, this integration is relatively simple, given that the similarities between ISO 9000 and ISO 14001 mean that many requirements for documentation and operational control are common, as are some of the audit procedures. In addition, both are a systems approach to management rather than single issue approaches.

Other management or record-keeping activities that may be integrated within an EMS include:

- financial records
- physical planning of property layout and infrastructure (property management planning)
- occupational health and safety—regulations for employee safety now require planning, training and record keeping. Record keeping can be included under an EMS
- management plans required under various State and Commonwealth statutes—for example management plans for minimising native vegetation clearance, irrigation and drainage plans, agroforestry, threatened species recovery and intensive livestock facilities (either at development stage or to mitigate identified environmental problems). The option of integrated property management plans that would satisfy a range of statutory requirements is being considered in NSW
- detailed record keeping required by various statutes—for example detailed records for all pesticide applications.

The National Framework is useful to producers involved in all farming systems (conventional, organic and biodynamic). Organic landholders in Australia already have to comply with robust audit and certification processes before they can market their produce as ‘organic’. The revised National Standard for Organic Production includes several environmental aspects, including vegetation and biodiversity management. There is therefore some convergence between the requirements for certification for organics and for EMS. However, a certified organic landholder may not necessarily have a comprehensive system in place for managing the environment, while a landholder with a certified EMS may still be using chemicals in production.

Irrespective of production philosophy, an EMS can provide a valuable means for assessing and acting to address priority issues on a farm.

Case Study: Western Australian pastoralists combine EMS with food safety

The recent accomplishments of Challa Station highlight the benefits of integrating EMS with other property management processes, particularly QA.

Challa Station is an 87 000 hectare pastoral lease situated 600 kilometres north of Perth in the semi-arid shrub-lands of Western Australia. The station has been managed by the Dowden family for over a century and currently produces merino sheep and wool. Aware of growing interest in safe and sustainably produced goods, the Dowdens have been keen to verify and promote the 'clean, green' image of their station, with QA and EMS offering the most suitable means of verification.

Supported by the Gascoyne-Murchison Strategy, the Dowdens have assessed the benefits of a number of different systems, including ISO 14001. They were initially attracted by the international recognition of ISO 14001. However, after developing an EMS for Challa, they decided that the standard exceeded their current requirements, feeling the standard would only be of benefit if there were direct market signals for ISO 14001 certification. If markets demand it, the Dowdens will consider certifying their system to ISO 14001, but they believe that ISO 14001 would be too complex for most pastoralists to use as a starting point to EMS.

Safety and quality are still the primary determinants of product sales, so the Dowdens decided that the greatest benefit would come from developing an integrated management system, integrating environmental issues into an SQF 1000^{CM}-based system. Developing an integrated system was also a way of streamlining system paperwork, with procedures and records designed to serve a dual purpose wherever possible.

Like ISO 14001, SQF 1000^{CM} is a process standard focused on identifying and managing risks. However, whereas ISO 14001 looks at environmental risks, SQF 1000^{CM} focuses on product safety and quality risks. So while SQF 1000^{CM} is not officially registered as an environmental code, the risk assessment and management processes used for safety and quality hazards can easily be applied to environmental issues to develop an EMS.

The EMS that the Dowdens have developed as part of their SQF 1000^{CM} system is largely compliant with the requirements of ISO 14001. When their management system was audited and certified to the SQF 1000^{CM} code in May 2002, the auditor noted that only a few modifications would be required to pursue ISO 14001 certification.

SQF 1000^{CM} has provided the Dowdens with a simple but recognised approach to QA. Including an EMS in the system has given them an independent verification of their commitment to responsible rangeland management. While the environmental component of the system itself is not formally recognised as ISO 14001, the Dowdens are able to address the primary concerns of their customers, while formalising their commitment to the environment. The system developed by the Dowdens gives them the flexibility to progress to ISO 14001 as required.

There are many approaches to EMS and QA. The innovation and success of the Dowden family highlights the value that producers may find in developing integrated management systems and adopting a stepwise approach to ISO 14001.

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5.3 How does an EMS link with regional and catchment planning processes?

Across Australia, environmental performance standards and targets are being collaboratively developed for regions and catchments with input from industries, governments and the community. While regional or catchment priorities are not always the same as those on an individual farm, an EMS allows landholders to phase in actions based on broader scale priorities in the order and at the pace they desire. In this way, regionally agreed targets can be integrated into practical on-farm actions through an EMS.

The National Framework for EMS in Agriculture aims to encourage a two-way exchange of information between the planning scales on the farm and in the region. For example, information provided to landholders through regional and catchment planning processes will help individuals develop their own on-farm goals and targets under their EMS. An effective two-way flow should also help resolve the problem of working with regional planning documents that do not always contain enough detail about environmental issues to inform management change at the farm or enterprise scale.

Some key environmental issues—such as biodiversity, vegetation and water quality—can be successfully addressed only through the management practices of all landholders in a region. Clear links between an on-farm EMS and the monitoring and evaluation of resource conditions against targets set for salinity and vegetation (for example), may also provide evidence that improved management practices are actually contributing to positive and sustainable environmental outcomes. However, there are significant issues related to the likely timelags between changing management practices and identifying measurable improvements in the environment. Adoption of EMS, with its associated internal monitoring and review processes, can help to improve our understanding of the connection between management practices and resource condition. Such links will also provide credibility to external parties interested in environmental performance.

6. Applying the National Framework (who does what, where and how?)

A primary function of the National Framework is to identify who does what, where and how. It seeks to clarify and recognise the scales of involvement and complementary roles for participants at the levels of farm, industry, catchment and regional, and Commonwealth, State and Territory, and local government. These roles are not new or constructed, but they are a reflection of existing and emerging roles.

The Framework also promotes strong and effective partnerships between the various participants in EMS. Such partnerships will be needed for EMS to become an effective tool for achieving natural resource management goals and bringing practical benefits to landholders.

6.1 Roles for individuals in the National Framework

On-farm actions are critical to achieving sustainable natural resource management in Australia—primary producers are responsible for management of around 60 per cent of Australia's land resource. Urban and regional Australians should be aware that the management decisions of these landholders will determine the future sustainability of Australia's agricultural sector.

Landholders are not the only individuals with a role to play. **Consumers** also have individual responsibilities. With the increasing demands for environmental and resource outcomes, consumers could consider supporting products that can provide environmental assurances, even if it means paying a premium if it is within their means. It is unrealistic to expect landholders to implement complex farming systems to meet consumer demands for 'clean and green' without market support.

Roles for individual landholders include:

- developing individual on-farm EMS as a step-by-step approach to dealing with the complexities of modern agriculture
- actively seeking information and support from reliable sources and understanding how to apply it in decision-making processes
- demonstrating 'good' natural resource management and leading by example
- participating in catchment planning processes and considering their role in the catchment
- contributing to 'feedback' processes related to catchment planning and research and development
- complying with the various State, Territory and Federal laws and regulations relating to the environment and natural resource management. The Framework is intended to assist understanding of what these laws mean in practical terms
- adopting industry/regional BMPs or Codes of Practice.

A landholder's decision to adopt an EMS can be influenced by environmental considerations or by industry and market requirements. Industry BMP guidelines or Codes of Practice may already exist for the enterprise and be readily available, or even compulsory, for members of some industries. However, the result might be a confusing array of different standards and demands for environmental action.

Landholders implementing an EMS commit to developing plans that address significant environmental impacts of their operations. They also seek to contribute towards meeting regional and catchment targets for the environment developed by local and regional bodies, as well as BMP guidelines or Codes of Practice set by industry. However, to ensure an EMS covers the critical environmental issues there needs to be ongoing discussion between landholders adopting EMS and other community members, their industries, the supply chain and with the agencies developing environmental performance targets in consultation with industry and the community. The National Framework allows individuals wishing to develop an EMS to enter at a level appropriate to their needs. The most appropriate entry level will also depend upon:

- the type of business or enterprise
- its position in the market place
- any environmental reporting requirements
- the personal choice of the landholder.

Case Study: EMS brings biodiversity benefits for Abbotsleigh Citrus

Abbotsleigh Citrus is a privately owned company on a 512 hectare property west of Bundaberg. The farm, formerly producing dairy and beef cattle and sugarcane. It is located within the sensitive Burnett River system, in the habitats of the Coxen's Double-eyed Fig Parrot (one of Australia's most endangered parrots) and the lungfish.

Abbotsleigh has both environmental and QA programs, certified to the ISO 14001 and 9001 Standards. Integrating production and environmental issues into an overall management system has avoided the need for multiple audits. Ray Whear, the Managing Director, believes that is worth it to *“start at the top, with the ISO standard. Their standards exceed SQF, they exceed HACCP, so if you comply with ISO, you don't need to be audited by the others.”* [Eds. Note that producers may still need to meet specific market requirements.]

The main environmental issues are related to water quality and the control of pesticide and fertiliser runoff. River dwelling fauna, including the rare lungfish, have benefited from Abbotsleigh's minimal pesticide and targeted fertiliser use. Specific areas covered include citrus cultural practices, water management, chemicals storage and handling, air management (buffer zones, careful calibration and application), integrated pest management, and biodiversity management. Native animals have increased in number and 120 bird species have been identified. A legally binding Nature Refuge status is currently being implemented.

Regeneration of rainforest and along the riverbank, through weed and feral control and revegetation with native species, will prevent further degradation of the riverbank and help the farm's integrated pest management program. Landcare provides Abbotsleigh with advice about which species of trees should be reintroduced and seeds are also collected and propagated from the remnant vegetation. The aim on Abbotsleigh is to create a balance, with more native trees than citrus. The benefit is not just for the environment as the biodiversity changes are acting in the interest of Abbotsleigh. Increasing numbers of predatory insects assist with the integrated pest management program and contribute to reducing pesticide use (with savings of up to \$40,000 in 2001). The EMS includes the packing sheds, where ozone sterilisation technology has replaced chemicals, chlorine, and oxidisers in the packing process. Fruit washes and dips are not allowed to drain to creeks or other waterways, but are all contained on the farm.

Abbotsleigh's EMS certification has been recognised under the Japanese environmental standard JIS Q 14001: 1996, paving the way to acceptance into this highly competitive market. The Abbotsleigh Citrus label incorporates their environmental, QA, and integrated pest management certification. A future redesign will include endorsement from the Australian Conservation Foundation, Landcare, and Birds Australia—organisations that will receive a percentage of the profits from each box of fruit sold. Biodiversity contributes to improving the quality of the fruit and making sure the orchard remains viable well into the future.

Contact: Scott Yeoman email scott@abbotsleigh.com.au or Clive Roydhouse, Special Projects Manager, Tel 07 3711 9112 or at their website at <http://www.abbotsleigh.com.au>

6.2 Role of industry

Australian industry sectors are finding their role with members is increasingly focused on natural resource management and sustainability issues arising from market or legislative requirements or community expectations. In response, industries have already established, or are establishing, Codes of Practice, BMP guidelines, or similar programs. Industry can encourage individual operators to comply with these codes to ensure continued access to natural resources, food safety and environmental protection. Some industry organisations require members to adopt BMPs or be certified to an industry standard as a condition of membership.

Industry has a strong and varied role to play within the Framework, including:

- developing and providing Codes of Practice based on best scientific information and best practice, but which can accommodate regional differences
- developing key performance indicators for industry, benchmarking current status and monitoring progress
- support compliance with legislation by providing up-to-date and easy-to-access legal information
- encouraging the development and implementation of the National Framework amongst its members
- coordinating with other industries—very few farming enterprises in Australia are single commodity enterprises. In implementing the Framework, industry has a responsibility to ensure a consistent approach to the development and adoption of EMS in agriculture so that landholders are not faced with a plethora of incompatible schemes
- providing timely information to members
- supporting members in developing EMS, including building capacity through training and information and support networks
- facilitating integration of QA and EMS
- rewarding and promoting improved environmental performance and EMS excellence.

Some industry sectors and companies have begun to focus on regional groups of producers—the rice and viticulture industries are examples. The Framework supports the active engagement of industries at the regional level. Industry can also work with its members at the catchment scale to ensure that catchment plans and targets are incorporated into industry-specific requirements and programs. They can help to reduce the burden on individual producers by interpreting and recommending how to comply with catchment, vegetation management, land and water management plans, and salinity action plans.

There are potential roles for industry Research and Development Corporations to help identify relevant environmental issues to be dealt with in industry specific EMS (such as biodiversity and greenhouse emissions). Research and Development Corporations may also have a role in bringing together regional groups. This has already been done by some; for example, the Grains Research and Development Corporation provided support to the Mingenew–Irwin grower group in Western Australia in their efforts to establish and implement an EMS. Once a critical mass has been established it is envisaged that these programs will become self-perpetuating.

The overseas supply-chain trends towards quality and environmental assurance suggest that industry-managed auditing and certification process could be of value to some industries in the future. This then ensures that the process is affordable and streamlined and facilitates integrated management systems.

The following three case studies describe industry initiatives that have taken different approaches to environmental assurance.

Case Study: Best Management Practice in the cotton industry

The Australian cotton industry has the Best Management Practice (BMP) Program. Consideration is being given to further developing this into a program consistent with and capable of certification to ISO 14001, covering the management of pesticides, water, soil and nutrients, vegetation, fuel and waste, and energy conservation. BMPs and principles may be developed for each of these items to assist growers in addressing their on-farm environmental priorities.

A core of ‘non-negotiable’ practices and principles has been suggested to achieve a consistent focus and minimum level of environmental performance throughout the industry. Such an approach would help overcome environmental information and cost of compliance barriers, by generating guidance material on farm-relevant environmental BMPs that could potentially be incorporated into an EMS capable of certification.

Contact: Alan Williams, Australian Cotton Growers Research Association, Tel 02 6793 5301, email allanw@mpx.com.au

Case Study: The rice industry—Environmental Champions Program

The Australian rice industry in southern NSW is developing an ‘Environmental Champions’ program. This program is designed to recognise the environmental efforts of individual rice farmers. Current and proposed actions aimed at improving environmental aspects on and around their farms are included.

The program is tiered, with five levels of certification. It is being developed in partnership by rice farmers, representatives from irrigation companies and the NSW Department of Land and Water Conservation, extension officers from NSW Agriculture, and representatives from CSIRO, the Rice Cooperative Research Centre and Landcare. The program will take growers from a level of meeting basic compliance requirements of irrigation companies, NSW Department of Land and Water Conservation and other agencies, to a level of ‘Regional Sustainability’ that will result in benefits for their region and catchment.

The five levels of the program are:

1. Compliance (chemical training and storage, rice policy)
2. Beyond Compliance (aspect-impact analysis, better water use efficiency, stubble burning)
3. Stewardship (farm planning, biodiversity recovery, salinity and soils)
4. Eco-efficiencies (energy efficiency, renewable use and generation, waste, water, greenhouse gases)
5. Sustainability (land use options, carbon and salinity trade, river and landscape issues)

A basic EMS approach will form part of the second level. Growers will be encouraged to look at their activities and environmental impacts and to identify possible changes that could enhance environmental outcomes. Guidance for growers to conduct this analysis will be provided as part of the program. Currently around 30 rice growers have volunteered as the first ‘Environmental Champions’. They will enter at the first level when the program is launched later this year. Some growers may already have undertaken activities that form part of the upper levels, and these will be recognised as they progress through the program.

Contact: Matt Linnegar or Margaret Andrezza, Ricegrowers’ Association of Australia, Tel 02 6953 0433

Case Study: Viticulture’s framework for environmental management

The framework for a Wine and Grape Industry Approach to Environmental Management represents the industry’s approach as a series of increasingly sophisticated options for environmental management. These options are introduced through a tiered approach beginning with identification of the various elements of a grower’s operations that can affect the environment and an analysis of the impacts. Consecutive options include environmental risk assessment, implementation of a self-declared EMS and its subsequent auditing by second or third parties, culminating in an independently certified EMS. The top tier represents independent product certification (similar to the Marine Stewardship Council scheme)⁴. While this does not presently exist for grape and wine products, the National Framework suggests implicit aspiration towards such a goal.

Importantly, the industry emphasises the possibility of entering the system from any point and progressing at the speed desired by individuals. While full certification to ISO 14001 is possible, progress towards this goal is voluntary and not assumed as the end-point. The viticulture framework focuses on ensuring that growers are confident they have reached a tier that meets their business needs. If neighbours and other relevant stakeholders such as local councils are satisfied with the environmental practices and performance, then full ISO14001 certification is likely to be an unnecessary expense. This approach respects the business needs of growers while encouraging incremental incorporation of environmental considerations into management.

Contact: David Baker, CRC Viticulture, Tel 08 8303 9405, email dbaker@senet.com.au

⁴ The Marine Stewardship Council (MSC) was established by the World Wildlife Fund and Unilever in 1996. An independent organisation, the MSC promotes environmentally responsible stewardship of marine fisheries by encouraging certification of fisheries against the MSC standard (www.msc.org).

6.3 Role of catchment and regional groups

Catchments and regions are increasingly recognised as the most appropriate scales for managing natural resource issues. Governments have focused on this scale to achieve tangible environmental improvements over the medium to longer term. Examples include the National Action Plan for Salinity and Water Quality, the Murray–Darling Basin Commission’s draft Integrated Catchment Management Strategy, the Natural Heritage Trust 2, and a range of regional-specific state plans and strategies. As a result, most efforts at natural resource management priority setting and monitoring are being undertaken at catchment level.

However, geographic areas other than catchments can also assume a lead role in delivering natural resource management outcomes for a particular industry. Wine regions are a good example. Southcorp, for instance, has embarked on a major program with Land and Water Australia and the Australian Conservation Foundation to explore how ecological issues operating at the landscape scale can best be incorporated into EMS operating at enterprise and industry scales.

Catchment planning should be based on the best available science and it should be inclusive of the needs of the community that lives within the region or catchment. It should also be responsive to the expectations of the communities that live outside, with the result that national standards and targets for natural resource management are considered.

Catchment groups can:

- undertake catchment planning that is cooperative, makes effective use of best science information, is inclusive of all stakeholders, and fully integrates social, economic and environmental objectives
- support the delivery of community-agreed objectives for natural resource management outcomes
- support capacity building activities and ensure the necessary resources are in place to enable goals to be met
- form strategic partnerships and encourage industry to participate in and deliver on planning processes and outcomes
- actively seek information and support from reliable sources—including relevant ecological and biophysical expertise—and apply it to the catchment planning and management process
- prepare catchment management plans in sufficient detail to enable private landholders to link EMS activities to catchment-scale outcomes
- regularly monitor and publish the progress towards meeting catchment goals and objectives
- convey information to community and landholders in ways that add to knowledge and can be readily translated into farm responses.

The Framework will enable landholders to view their farm-based activities in a catchment sense. It will also enable communities to be confident in regional planning and its ability to address broad national issues of natural resource management and biodiversity outcomes.

The Framework seeks to enhance the links between on-farm EMS and regional planning processes. It supports the development of catchment plans that fully engage landholders in planning for, and delivering on, regional targets and natural resource management objectives. EMS carried out on individual properties might not achieve sustainable natural resource management at the landscape scale unless linkages are made between on-farm actions and regional off-farm impacts. Similarly, unless landholders are aware of and understand how the regional plan is relevant to their day-to-day activities it is unlikely that catchment objectives will be achieved. An EMS process provides a valuable tool for translating broad catchment strategies into practical on-ground actions.

The National EMS Framework also proposes strong roles for Landcare Groups and Landcare Facilitators (building on current Landcare activities) in supporting and assisting landholders to develop EMS on-farm that recognise and address regional priority environmental issues.

Case Study: The Australian Landcare Management System

The Australian Landcare Management System (ALMS) is an example of a partnership approach to environmental management that links on-farm and catchment management processes. The aim is to start with ALMS pilot groups across Australia, then develop and implement ALMS as a widely recognised and adopted Australian system. ALMS is a voluntary third-party audited EMS at farm level that is combined with:

- consideration of catchment level priorities and strategies
- natural resource monitoring including monitoring of indicators of support for biodiversity
- information exchange between the farm and catchment and public sector
- community and market place recognition of the landholder's commitment to continuous improvement in environmental management and involvement in the big environmental programs addressing matters such as salinity and conservation of biodiversity.

ALMS can function: 1. as a stand-alone voluntary whole of farm EMS closely linked to Landcare, catchment management and natural resource management programs; 2. as a framework to link other EMS with Landcare, or catchment groups and natural resource management programs; 3. By providing national and international recognition through a symbol or logo for products sourced from ALMS certified farms.

ALMS landholders would monitor natural resource condition on their properties and respond to this information in their management, forwarding their monitored information to catchment groups and assisting with the achievement of catchment natural resource management outcomes. The process would involve:

- a natural resources inventory and regular property inspections of natural resource condition
- combining regular inspection and monitoring information with landholders' management planning in the EMS continuous improvement cycle
- linking on-farm EMS activity with local catchment or Landcare Group for local knowledge and technical information sources
- provision of locally relevant checklists of catchment natural resource priorities and industry BMPs (in paper and electronic forms)
- evidence of compliance with baseline standards required by regulation provided (but on-farm management would aim for levels above these)
- making relevant information from farm monitoring accessible to catchment groups subject to privacy provisions (this exchange of information between farms and catchment groups is a critical part of the natural resource management partnerships between landholders and the community)
- participating landholders favoured for provision of eco-services to achieve catchment wide benefits.

International Recognition

For maximum advantage and credibility, ALMS will need to be linked to international standards through third-party certification. Current thinking is that the ALMS process will incorporate ISO 14001 to ensure international recognition. The ALMS symbol or logo would signify to the customer or authority that:

- the landholder is reducing environmental impacts through a continuous improvement cycle in an audited internationally recognised system of management
- sound farm management is addressing the big environmental issues such as salinity and biodiversity conservation through two-way links to the relevant catchment management plan.

Future Activity

North East Downs Landcare is committing resources and a Project Officer to facilitate the implementation of ALMS as a recognised and respected EMS. This is to be achieved through a process of working with interested groups in the Queensland Murray–Darling Basin who are committed to a management system approach. This partnership is acting as a leader for five other Catchment Groups in three States that have indicated an intention to develop pilot trials of the ALMS concept—NSW, Victoria and South Australia.

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6.4 Role of governments

Commonwealth, State and Local governments share a range of roles that would support EMS and the National Framework. Importantly, governments recognise that market forces have already led to many environment-related programs, many of which also involve certification. The National Framework seeks to build on these existing initiatives and to facilitate the development and implementation of EMS across the board.

The role of governments should be consistent with existing legislation and with intergovernmental initiatives, such as National Competition Policy (Council of Australian Governments 1995) and other microeconomic reforms. This is the case even for activities that do not rely on legislation. Assessment against National Competition Policy principles is useful in considering whether government intervention is applied in a consistent manner that does not impinge on private enterprise.

Government involvement in EMS is most appropriate when:

- there is market failure (that is, are there obligations that make government involvement mandatory and public good benefits that cannot be achieved without government involvement)
- the magnitude of the costs of market failure sufficient to justify government action
- the market failure can be addressed at the source (that is, by other than government stakeholders)
- the government's proposed option is better than alternative solutions such as regulation
- industry efforts in EMS could benefit from coordination and the formation of strategic partnerships
- the task part of the expected role of government due to its state legislative obligations, and its national treaty and trade imperatives

In line with the parameters for government involvement outlined above, there are clear areas in which government *should not* be involved. For example, it would *not* be desirable for governments to:

- establish EMS in farming as a legislative, or regulatory requirement
- require the EMS as a mandatory condition of land use
- require EMS as a condition of materials use, for example of farm chemicals or fertilisers
- audit farm EMS, provide personnel to audit EMS, or accredit certification schemes.

Government involvement in EMS in general, and the roles proposed for government in the National Framework generally satisfy these criteria, including development of policies and plans, and the research component of developing BMPs and Codes of Practice. At the same time, it is realised that the *market can* deliver aspects such as certification and auditing personnel. For other aspects, where there may not yet be sufficient business justification, short-term involvement by government such as provision of financial incentives, may be justified while the markets develop. In this case, an exit strategy needs to be determined so that future independent businesses are not crowded out by government.

Table 2 summarises the proposed roles of governments into six main categories. These include the following:

Providing and facilitating user's access to education and information

All governments generate and store information that can affect the way that farming operations are conducted. There is a role for governments to ensure that management or record-keeping systems are compatible and minimise the time demands on landholders. Governments can generate, translate, target and provide access to information (this includes information about legislation, regulations, and market trends, as well as scientific and natural resource management information) that has the potential to support EMS adoption and add value to rural business. An important development in the delivery of information on EMS has been a web-based communication tool called the EMS Navigator.

Box 7. EMS Navigator—a tool for EMS in Australian Agriculture

Stakeholder advice has confirmed the value of a mechanism for improved EMS communication around the country and that this is a key role for governments in facilitating and coordinating EMS adoption in Australian agriculture.

A web-based mechanism called the EMS Navigator has been developed to provide interested parties with simple and straightforward access to EMS information held by various government and industry agencies around Australia and overseas. Contributing agencies that host their own EMS information retain responsibility for maintaining and updating their information on their own servers. Users can search the database by industry, by State, by activity or by word.

Under the *Australian Privacy Act*, individuals must give explicit permission for their name, email address and phone number to be placed on the web. Therefore, all current EMS and related activities on the Navigator have had written approval for all contact details for project managers.

Contact: The address of EMS Navigator is <http://www.affa.gov.au/emsnavigator>

Governments also have a role in ensuring that EMS training is facilitated and coordinated. Importantly, training in EMS should be based on the National EMS competencies approved under Australia's National Training Framework. These provide a set of core elements to ensure a nationally consistent approach to EMS, but on which regional and industry-specific needs can be built.

The strength of the 'E' in EMS depends on the strength of the supportive information in the management system. Without it, EMS is weakly positioned to deliver what it potentially promises.⁵ Indeed, the development of environmental information for use in on-farm EMS represents an important area for governments and industry to play a future supportive role. Landholders also hold valuable personal knowledge of the environment on their farms. A partnership approach will facilitate uptake of practical and effective on-farm EMS and the implementation of the National Framework for EMS in Agriculture.

Developing environmental policy

Governments have a range of policy tools that could assist EMS adoption in agriculture. These include the development of strategies (such as this Framework) and action plans to inform and guide land managers and decision-makers in the appropriate management of natural resource management. Leadership could be provided through the development of innovative policy frameworks that support integrated responses and facilitate natural resource and environmental management. Policy development and delivery could be better integrated across the three spheres of government and between departments.

⁵The ISO 14004 guidelines clearly state that requirements of the ISO 14001 process standard include compliance with prevailing environmental legislation and regulations, as well as with 'other requirements to which the organization subscribes, that are applicable to the environmental aspects of its activities, products or services' (Standards Australia, 1996). These 'other requirements' may include industry codes of practice, agreements with public authorities and non-regulatory guidelines, as well as international environmental guiding principles. In other words, an EMS will only work if the information for the system is in an available and usable form to enable the farm level management of environmental impacts in question to be improved.

Providing a range of incentives

Governments can provide financial incentives to support voluntary and industry-led adoption of EMS—for example, the Commonwealth has established the Environmental Management Systems Incentives Program to provide a cash refund for the development and adoption of EMS on-farm.⁶

Experience across several industries has been that it is essential that auditors have good technical understanding of the agricultural production system being audited. Governments encouraging the use of third-party audits could help fund or offset associated costs by providing assistance such as direct funding, tax rebates, discounts for farm expenses such as rates, insurance premiums, water, chemicals, fuel, contract services, environmental management equipment (for example, water and weather monitoring), tree plantings, and creation of reserves.

“An incentive for being environmentally responsible is really needed to get significant uptake as there is quite a lot of time and expense involved. EMS is voluntary, but not separate from regulations, since we all have to comply with the law. I can now see the management benefits, although neighbours have said, ‘Why put more barriers up for ourselves? Why make life harder than it already is?’” Grain farmer with EMS in place

In addition, the National Action Plan for Salinity and Water Quality has established national natural resource outcomes that provide the context for setting of regional targets within accredited regional plans. The targets are to be achieved with the help of Commonwealth and State government investment. The investment could be used by regional bodies or others to support individual landholders in a catchment to adopt EMS that lead to appropriate farm management. This will in turn collectively lead to achievement of catchment targets and broader national outcomes.

In partnership with State and Commonwealth governments, Local governments can facilitate access to incentive programs that recognise sustainable practice achieved through the adoption of an EMS. Local governments can work more closely with regional and catchment bodies to help support linkages between EMS, land use decisions and catchment natural resource management and environmental outcomes. Awards programs and publicity, provision of on-ground support and capacity building are also forms of incentives that governments could provide.

Leading by example

All governments can develop and apply EMS to their own business operations. For example, the Australian Local Government Association has developed a guide to assist in the development and certification of EMS that cover council operations⁷—this is appropriate given that local government is the primary manager of public lands in local areas. All governments can ensure that their own staff, particularly those dealing directly with land managers, are well informed and aware of EMS.

Research and development

All spheres of government undertake or commission research that is relevant to natural resource management. Governments need to maintain a responsive research and development sector that can create and disseminate new knowledge to build productive and sustainable agricultural sectors and communities. There is scope to ensure that this is better targeted and conducted in partnership with the end users to ensure its applicability and usefulness. Research could be better targeted and coordinated within and between governments.

⁶ The Environmental Management Systems Incentives Program provides low-income primary producers with a reimbursement of up to \$3000 to develop and implement an EMS (up to 50% of costs of eligible expenditure). For more information, see the Centrelink website <http://www.centrelink.gov.au/internet/internet.nsf/> and search for EMS.

⁷ ‘Managing the Environment: A practical guide for Local Government to Environmental Management Systems and ISO 14001’ Australian Local Government Association, 1996.

Monitoring and evaluation

Government has a key role in the development of monitoring and evaluation tools and mechanisms at the farm and catchment scale. This helps on-farm EMS development and it supports existing natural resource management programs by encouraging and supporting appropriate data gathering and the transfer of information. A government role in this area would enhance decision making at a range of levels and support landholders, catchment management or regional planning groups, and other government agencies.

There are also some roles that are unique to a particular sphere of government depending on responsibilities and the scale at which the action is needed, for example:

The Commonwealth has a strong role to play in:

- providing leadership and support through a mixture of policies and incentives to drive the widespread adoption of EMS
- supporting regional bodies to engage landholders to contribute to landscape natural resource and environmental outcomes through EMS linked to sufficiently detailed natural resource management plans
- supporting industry to meet international market demands and in the negotiation of trade rules and agreements that reflect the needs of a sustainable Australian agricultural sector; including facilitating recognition of Australian programs in the international arena
- ensuring a consistent intergovernmental approach to EMS in agriculture and that this is consistent with major policy direction in other sectors such as fisheries and forestry
- assessing and supporting national natural resource management priorities
- ensuring a coordinated approach to EMS across industry sectors.

State and Territory governments: as the sphere of government with constitutional responsibility for natural resource management, State and Territory governments are in a primary position to influence natural resource management and to support EMS by:

- providing leadership and support through a mixture of policies and incentives to drive the widespread adoption of EMS
- maintaining adequate research and development staff to support primary producers in designing more sustainable production systems and practices
- supporting regional bodies to engage landholders to contribute to landscape natural resource and environmental outcomes through EMS linked to sufficiently detailed natural resource management plans
- assessment of, and support for, state and regional natural resource management priorities
- working across state boundaries where catchments dictate
- ensuring that all landholders have access to appropriate training in EMS.

Local governments: are the sphere of government ‘closest to the people’ and it can facilitate the voluntary adoption of EMS by:

- acting as local information brokers for community and landholders on EMS
- promoting the economic and regional potential of EMS
- being a facilitator and advocate by providing meeting rooms, secretarial support, administrative support, and facilitating negotiations
- assessing and supporting local natural resource management priorities and working with regional and catchment bodies to enable them to link EMS to landscape natural resource and environmental outcomes
- where agreed and resourced, providing infrastructure or undertaking capital works to support on-farm actions and changed management practices arising from EMS plans.

Table 2. Six areas in which governments can play a role in EMS for agriculture

National/Commonwealth governments	State/Territory governments	Local governments
1. Education and information		
<ul style="list-style-type: none"> • Collate, disseminate and update EMS information for all stakeholders • Facilitate and coordinate EMS training opportunities • Provide information on ‘green market signals’ and international trends • Inform international markets about Australian initiatives • Provide other relevant supporting information (National Land and Water Resources Audit, State of the Environment reports, and other data and reports) 	<ul style="list-style-type: none"> • Identify case studies and promote benefits of EMS to producers, processors and consumers • Provide information on environmental risks, standards and best practice for agriculture • Facilitate EMS training opportunities • Provide supporting regional data and reports 	<ul style="list-style-type: none"> • Promote the economic and regional potential of EMS • Use Landcare and catchment networks to promote EMS • Provide local State of the Environment commentary
2. Coordination		
<ul style="list-style-type: none"> • Coordinate establishment of national and regional environmental objectives and targets, standards and guidelines in partnership with States, industries, research organisations and communities • Assist integration of EMS with other existing systems (e.g. property management plans, QA, SQF, Freshcare, etc) • Ensure stakeholders are up-to-date with relevant national and international EMS developments 	<ul style="list-style-type: none"> • Contribute to development of environmental management standards and guidelines • Coordinate establishment of local and regional environmental objectives and targets in partnership with research organisations and communities • Ensure stakeholders are up-to-date with relevant regional and State EMS developments 	<ul style="list-style-type: none"> • Participate in the establishment of local and regional environmental objectives and targets in partnership with regional and catchment bodies • Help coordinate local groups that are addressing issues of environmental management in farming
3. Facilitation		
<ul style="list-style-type: none"> • Support an environmental management framework appropriate to all levels of government and industry • Establish environmental objectives and targets at local, regional and national levels in partnership with research organisations, conservation groups and local communities • Establish and maintain institutional arrangements to foster voluntary EMS adoption • Catalyse EMS development and adoption through expert-led workshops with interested stakeholders • Support voluntary EMS participation 	<ul style="list-style-type: none"> • Support an environmental management framework appropriate to all levels of government and industry • Establish and maintain institutional arrangements to foster voluntary EMS adoption • Support voluntary participation in EMS initiatives • Promote efficient EMS • Assist integration of EMS with other existing systems (e.g. property management plans, QA etc) • Support good environmental management among farm suppliers 	<ul style="list-style-type: none"> • Support an environmental management framework appropriate to all levels of government and industry • Support local establishment of environmental objectives and targets • Support voluntary participation in EMS initiatives
4. Environmental policy development		
<ul style="list-style-type: none"> • Develop incentives for voluntary EMS adoption, for example, reduced licence or permit fees • Focus EMS to address critical issuesLead by example through implementation of EMS as a policy in all government businesses and properties. 	<ul style="list-style-type: none"> • Develop incentives for voluntary EMS adoption, e.g. licence or permit fees • Provide input to EMS development to address critical environmental issues • Lead by example through implementation of EMS as a policy in all government businesses and properties 	<ul style="list-style-type: none"> • Support a community culture of EMS adoption • Lead by example through implementation of EMS as a policy in all government businesses and properties
5. International arrangements		
<ul style="list-style-type: none"> • Support industry in export market identification and development • Negotiate trade rules and appropriate international agreements 	<ul style="list-style-type: none"> • Support industry in export market identification and development 	<ul style="list-style-type: none"> • Support responsible sustainable development as per Local Agenda 21

6. Research and Development		
<ul style="list-style-type: none"> • Collate and publicise information on current research and development projects • Develop a framework for collaborative and integrated EMS research and development between funding agencies 	<ul style="list-style-type: none"> • Ensure coordination to reduce potential for overlap/duplication between State Agencies, CSIRO, universities and industry to maximise research and development benefits. 	<ul style="list-style-type: none"> • Use regional planning frameworks such as catchment management plans to ensure better strategic focus for EMS research and development and development of regional EMS • Ensure local coordination of research and development activity to reduce potential for overlap and duplication, and maximisation of research and development benefits

6.5 Partnerships—complementary roles in the National Framework

The role of partnerships in practical implementation of the National Framework cannot be underestimated. EMS in Australia will be developed in a consistent and practical way only when strong and cooperative partnerships are developed between governments, industry, regional communities and individual landholders. For this reason the National Framework not only recognises their complementary roles in natural resource management, but also promotes the active integration and development of partnerships across all scales.

A critical area for future action under the National Framework will be multi-lateral partnerships between industry sectors, Research and Development corporations, scientific institutions, and governments to ensure the consistent flow of sector-relevant information. This could inform landholder decision-making and support regular updating of industry and government policies and plans that respond to new understanding of environmental issues and the changing needs of the community.

It is worth remembering that while the National Framework can be applied at various scales and over a range of organisational structures, an EMS can be developed by and applied to only those activities over which an enterprise or organisational structure exercises direct control.

6.5.1 Landholder partnerships

The National EMS Framework facilitates landholder access to information on environmental priorities and other industry management research developments. The Framework recognises that landholders will come from different starting points in their approach to environmental management and what they want to achieve from improved natural resource management.

Partnerships between individual landholders and other sectors of the community will increase the effectiveness of the EMS process. These partnerships are important to an integrated approach to managing natural resources at the local and regional scale.

Specifically, the entire community can benefit from partnerships between landholders and:

- *other landholders and Landcare*—for peer support and exchange of information. An EMS process provides a valuable tool for landholders to translate broad strategies for a region, catchment or industry into practical on-ground actions. The National Framework proposes strong partnerships between Landcare Groups, Landcare Facilitators and landholders so on-farm EMS can address regional environmental priorities.
- *catchment and other authorities responsible for catchment management and regional development planning*—to ensure that landholders are aware of the contribution that on-farm actions can have to minimise off-farm impacts at the regional scale and to achieve wider landscape-scale natural resource management outcomes. Landholder input of own local knowledge is invaluable in the establishment of practical catchment and regional goals and targets that can be achieved through their day-to-day activities

- *industry and supply-chain*—key areas for these partnerships are to:
 - provide appropriate interpretation and recommendations to landholders about how to comply with catchment, vegetation management, land and water management, and salinity action plans
 - ensure that research, development and information needs are better understood, do not duplicate existing work and better meet the needs of on-ground decision makers
 - develop Codes of Practice that link on-farm action to catchment goals and in a way that meets supply chain or market requirements
- *research organisations*—to ensure that research and development and information needs are better understood, do not duplicate existing work, and better meet the needs of on-ground decision makers
- *government agencies*—to meet an increasing focus on regional planning which involves all areas of the community. Examples include the regional planning processes under the National Action Plan for Salinity and Water Quality and Natural Heritage Trust 2.
- *local government*—through their operations, planning approval processes and local environmental plans.

6.5.2 Industry partnerships

The partnerships and communication channels established through implementation of the National Framework can help to ensure that industry-driven EMS initiatives do not result in a plethora of incompatible EMS schemes. Active partnerships with industry under the Framework would:

- ensure the integrity and credibility of EMS approaches
- facilitate a consistent approach to EMS development and implementation
- develop information packages to inform landholders of their rights and responsibilities under the law and relevant natural resource management strategies
- ensure that EMS initiatives are internationally credible to support industry in maintaining, or even gaining, market access and underpin industry EMS initiatives
- integrate EMS with existing programs such as QA or property management planning
- work to streamline and facilitate industry-managed auditing and certification processes to ensure the process is affordable and credible.

Few landholders are single commodity producers. Agri-industry sectors need to work together to achieve many of the above points, and they need to aim for integration with other agri-industries and the supply chain to ensure that landholder efforts meet market demands and that these efforts are rewarded:

The National Framework also outlines roles for Industry Research and Development Corporations in promoting the need for collaborative EMS research—in particular identifying areas for cooperation in:

- information needs and how this can best be interpreted and delivered on the ground
- identifying relevant best agricultural practices and Codes of Practice
- better coordinating research efforts within and between sectors.

6.5.3 Regional and catchment partnerships

As well as being scientifically sound, catchment planning needs to be able to incorporate outcomes from monitoring processes. This vital information is too important to leave to ad-hoc arrangements. Strategic partnerships between regional and catchment groups and the research community (research and development corporations and the scientific communities) are critical to identifying who needs what information, translating it and providing it in a timely way. Developing and maintaining such partnerships should be facilitated as an inherent part of the planning and monitoring process at the catchment scale.

Industry sector engagement with regional and catchment planning processes and target setting is likely to increase uptake and ownership of the outcomes. There is also scope for industry to better support the implementation of regional environmental plans in a more transparent and accountable fashion through the use of the EMS process. Industry sector involvement at the regional scale can make a major contribution to the achievement of natural resource management outcomes by:

- ensuring that catchment plans and targets are incorporated into industry-specific requirements and programs
- using catchment or regionally specific websites and other means to relay information to industry, and performance measures to urban populations and world markets
- providing support for landholders in implementing on-farm actions that contribute to catchment natural resource management outcomes, such as information, Codes of Practice and BMPs relevant to the region
- ensuring that landholders needs are considered in regional planning processes and that natural resource management outcomes are achievable.

With the current government focus firmly on implementing programs at the regional scale, regional bodies have a unique opportunity to seek financial support and other resources to meet natural resource management goals and objectives through partnerships with all spheres of government.

Partnerships between governments and catchments and regions in the achievement of natural resource management outcomes are the preferred policy approach. Under the Framework the Commonwealth will establish up to 15 regional EMS pilots to support communities in encouraging landholders to adopt EMS that reflect broader natural resource management priorities. The pilots will also allow evaluation of EMS as a tool to address natural resource management issues and the value of such partnership approaches. Two-way partnerships that identify information and capacity building needs at the regional scale, and agreed mechanisms for meeting those needs, will be important in ensuring the effectiveness of EMS as a tool to achieve natural resource management outcomes.

Catchment planning needs to recognise and be inclusive of the needs of the community that lives within the catchment as well as responsive to the expectations of the communities that live outside. Partnerships between landholders, the planners and the broader community can lead to a better understanding of what needs to be done, what is practical and achievable, and can harmonise goals and actions.

6.5.4 Government partnerships

Governments at all levels have a responsibility to coordinate policy development and program delivery. No government will be effective by itself. Governments are increasingly reliant on partnerships with other governments, individuals, the community, and industry for effective information exchange, ensuring certification meets international market requirements, or facilitating access to resources, information and capacity building. This type of partnership concept has also been called a social contract between industry and government.

Governments would like to ensure that the National Framework enhances rather than impinges on existing farm level certification or other programs. While industry should carry the primary responsibility for facilitating EMS, industry has been supportive of governments assisting EMS uptake in a range of areas. One example is the integration of EMS with existing programs such as QA or property management planning, although some QA programs could, in response to market forces, move to an EMS without the need for government input. Under the Framework, governments will also work with the financial sector to seek possible avenues for recognising farm management systems that address areas of environmental and financial risk.

As the primary managers of public lands in their local areas, local governments have a key role in land use decision-making through their planning approval processes. Partnerships formed under the National Framework can link existing and emerging EMS with local government environment plans to help developed an integrated approach to managing natural resources at the local and regional scales.

Public funds and resources are limited and it is incumbent on governments to minimise duplication and maximise synergies. The Natural Heritage Trust and the National Action Plan for Salinity and Water Quality have developed, or are in the process of developing, bilateral partnership agreements to ensure that agreed natural resource management outcomes are achieved. These agreements and related processes such as the Natural Resource Management Ministerial Council committee processes provide key opportunities to ensure joint action to support EMS.

Conclusion

The National Framework for EMS in Australian Agriculture establishes a cooperative support structure within which voluntary initiatives can develop in a consistent and coordinated manner. It provides the national setting for environmental management in Australian Agriculture, offering an approach by which all stakeholders can be involved in natural resource management in a structured and cooperative way, particularly through strategic partnerships.

An important part of the National Framework for EMS in Agriculture is to identify the roles of landholders, industry bodies, governments and other interested parties. It enables landholders in particular to systematically manage their natural resources as well as all the commercial, legal and social expectations now imposed on them, without unduly increasing the burden of compliance. Under the Framework landholders are able to implement EMS according to their perceived need, ability or interest, in a way that contributes to industry development and a sustainable rural future.

All stakeholders, from landholders to business and government organisations, are encouraged to participate in and implement this National Framework for EMS in Australian Agriculture. The National Framework is an initiative of major importance to sustainable agriculture in Australia. With the support of all participants there is the potential the Nation's natural resources and primary industries to be vibrant features of a healthy and robust future for many generations of Australians.

Appendix 1. Glossary of terms used in the National Framework

Accreditation refers to the acceptance of an organisation as being suitable to certify against a standard, such as an EMS. In Australia, accreditation is done by JAS–ANZ, with accreditation criteria based on the requirements of *ISO/IEC Guide 66* and the IAF Guidance on the Application of *ISO/IEC Guide 66* for Bodies Operating Assessment and Certification/Registration of Environmental Management Systems (EMS).

Best management practices (BMPs) are procedures and management guidelines. Monitoring and assessment are needed to determine their effectiveness, but they are not always done. BMPs can be used at local, regional and national levels and may provide targets for developing an EMS, as opposed to mere management guidelines. BMPs can be static or can be periodically reviewed and updated.

Biodiversity is the variety of all forms of life: including the different plants, animals and micro-organisms, the genes they contain, and the ecosystems they form. It is usually considered at three levels: genetic diversity, species diversity and ecosystem diversity.

Catchment is an area or basin from which rainfall flows into a river, stream or drainage system. It is particularly relevant when considering issues in which water movement is important, such as dryland salinity.

Certification refers to assurance that a business, producer or processor is operating in conformity with a particular standard (for example organics, Forest or Marine Stewardship Council, or the ISO standards).

Codes of Practice are developed and adopted by an industry and promoted amongst industry members. These may incorporate BMPs. They are adopted by an industry and promoted amongst members.

Continual improvement is the process of monitoring, review and evaluation to set relevant targets that ensure that the system is improving. This contrasts to having a fixed target often set by an external agency. An EMS can enhance management and achieve improvements in overall environmental performance in line with an organisation's environmental policy.

Due diligence refers to evidence that one has taken all reasonable steps to fulfil requirements under the law.

Duty of Care in its original sense referred to the Common Law requirement that everybody has a duty to avoid causing foreseeable harm to another person. The concept is increasingly being applied to the environment and in some states a duty of care to the environment has been included in legislation. It is the legal responsibility to care for the environment to the extent that is defined as 'reasonable and fair' by the local community.

Ecolabels allow product differentiation on the basis of claims about environmental characteristics. They are designed to enable consumers to exercise their buying power to increase the environmental awareness of producers and decrease harmful environmental effects. Claims may be externally verified and ecolabels that are underpinned by a certified EMS are likely to carry more credibility than those applied without either certification or system to underpin the claims made.

Ecologically sustainable development (ESD) is the improvement of the quality of life, now and in the future, including all environmental, social and economic components.

Enterprise is a component of a farm business. A landholder may have a single or multiple enterprises.

Environment is used to describe the surroundings in which we all operate, including air, water, soil, land, natural resources, flora, fauna, humans and their interactions.

Environmental management system (EMS) is a generic term used to describe any systematic management approach used by an enterprise or an organisation to manage its impacts on the environment. Environmental impacts and legal responsibilities are identified and a structured approach taken to review and improvement. An EMS provides a management framework that achieves continuous improvement through a 'plan, do, check, act'

cycle, within which BMPs can be integrated, and Codes of Practice upheld. An EMS can be externally audited and may be certified to a standard, such as the internationally recognised ISO 14001.

Environmental policy is a statement by an organisation of its intentions and principles in relation to its overall environmental performance that provides a framework for action, for the setting of its environmental objectives and targets and for the periodic review of the policy.

EUREPGAP is the European Good Agricultural Practice Protocol. It is an initiative of retailers belonging to the Euro-Retailer Produce Working Group (EUREP). Their aim was to agree on standards and procedures for development of good agricultural practice (GAP).

Greenhouse refers to an aspect of the greenhouse effect. It can be defined as human-induced change in the atmosphere that reduces the escape of radiation from the earth's surface. Efforts are being made to reduce greenhouse emissions from agriculture, including those carried out by the Australian Greenhouse Office through the Greenhouse Challenge in an effort to combat global climate change caused by global warming.

HACCP stands for hazard analysis critical control point. HACCP is the internationally recognised method of managing food safety risks and is therefore a critical component of any food safety plan. The HACCP standard is managed by the Codex Alimentarius Commission and is often referred to as Codex HACCP.

Implementation includes defining roles and responsibilities, training to develop the required competence, and setting up effective communication channels both internally and externally. Documentation, document control, operational control and emergency preparedness and response are also included, along with providing the time, resources and staff to make things happen.

Institutional arrangements relate to commitments and policies undertaken, including compliance with relevant environmental legislation and any other requirements to which an organisation subscribes. Environmental policies should be appropriate to the nature, scale and environmental impacts of activities. An organisation's EMS also provides a framework for ensuring commitment to continual improvement and pollution prevention and for setting and reviewing environmental targets, ensuring policies are documented, implemented and communicated to all employees.

ISO stands for the International Organisation for Standardisation. International committees formed under the auspices of the ISO have developed internationally accepted standards to guide the development of quality management (ISO 9000 series) and environmental management (ISO 14000 series, including ISO 14001, the international EMS standard). <http://www.iso.org/iso/en/stdsdevelopment/whowhenhow/how.html?>

ISO standards are developed according to the following principles:

- **consensus**—the views of all interests are taken into account: manufacturers, vendors and users, consumer groups, testing laboratories, governments, engineering professions and research organisations
- **industry-wide**—global solutions to satisfy industries and customers worldwide
- **voluntary**—international standardisation is market-driven and therefore based on voluntary involvement of all interests in the market place.

JASANZ is Joint Accreditation System of Australia and New Zealand, the government-sponsored joint accreditation authority for Australia and New Zealand.

Landholders is a term used throughout the National Framework for EMS to include all farmers, pastoralists, horticulturalists and others engaged in making a living from the land or with responsibilities for managing the land.

Measurement and evaluation involves establishing and maintaining procedures to monitor and measure impacts, performance, operational controls and conformance with objectives and targets.

Monitoring is the repeated observation and recording of findings over time. Frequently used in conjunction with evaluation to assess the progress in achieving stated outcomes over a given period.

Natural resource management is the management of the natural resource base (land, soil, water, vegetation etc) in a manner that maintains and safeguards its value for future generations. The term is used to denote the management of land and water in Australia and is widely used overseas where it generally also includes resources such as forests, fisheries and minerals.

Outcomes are the end results of organised activities. They are the matters that affect stakeholders and go beyond objectives, milestones, targets and goals, and etc.

Performance measures are details of an organisation's operations that may be monitored and measured to demonstrate that the organisation is meeting predefined criteria in a specified aspect of its operations.

Performance standards—since EMS only specifies a process, the outcomes from each EMS will vary. An agreed performance standard that all participating businesses undertake to achieve may be desirable for joint marketing purposes. Such standards are normally negotiated between the businesses and representatives of the community and consumers, for example the Marine Stewardship Council standard (www.msc.org). An Australian Forest Standard is at an advanced stage of development.

Planning includes establishing procedures to identify environmental impacts, legal and other obligations. Also included is setting environmental objectives and targets, establishing programs for achieving these, researching and developing key performance indicators and for reviewing progress.

Property management planning assists land managers to manage the personal, physical and financial aspects of a farm business through the development of a Property Management Plan. The National Property Management Planning Campaign aimed to increase landholder self-reliance and knowledge in relation to risk management and drought preparedness based on whole farm planning.

Quality assurance (QA) programs ensure that products consistently meet customer requirements. They are systems designed to ensure the quality of the end product (as defined by the customers), and they are usually developed and adopted by industries or individuals. They may be compatible with and/or certified to the ISO 9000 series.

Region is an area that can be determined by geographical, institutional or social boundaries.

Review and improvement specifically relate to the review of an EMS to determine its continuing suitability. The review process and outcomes should be documented. Policies, objectives and other elements of the EMS may need to be changed in the light of an EMS review, changing circumstances or even the commitment to continual improvement.

Standards refer to **targets and standards for natural resource management**, particularly for water quality and salinity, with the States and Territories, either bilaterally or multilaterally, as appropriate. The targets and standards should include salinity, water quality and associated water flows, and stream and terrestrial biodiversity based on good science and economics.

Sustainable agriculture has been defined as the use of farming practices and systems that maintain or enhance the economic viability of agricultural production, the natural resource base, and other ecosystems that are influenced by agricultural activities (SCARM 1998).

Sustainability indicators are a practical set of measures that enable decision-makers to evaluate how well a process or activity (such as agriculture, forestry and fishing) is contributing to ESD. In order to be meaningful, indicators need to be expressed within a framework that states the objectives that society is seeking to achieve.

Targets ensure that integrated catchment or region management plans contribute to the achievement of nationally agreed outcomes, catchment or region specific targets for salt, nutrients, water flow regimes, water quality, stream and terrestrial biodiversity will be required.

Appendix 2. Phased approach to EMS^a

Management Framework	Objective	Institutional arrangements	Planning	Implementation	Monitoring and Evaluation	Review and Improvement
SCALE: FARM or ENTERPRISE (general approach)	<ul style="list-style-type: none"> Decision point: operate independently of external standards or comply, progressively, in interest of greater market opportunities and/or environmental performance 	<ul style="list-style-type: none"> Decision/commitment on entry or progress to EMS at a level appropriate to business 	<ul style="list-style-type: none"> Assess site condition and environmental performance. Implement property management plans/whole farm plans. Establish objectives 	<ul style="list-style-type: none"> Follow Codes of Practice and BMP as appropriate 	<ul style="list-style-type: none"> Keep records of management actions If appropriate, seek independent audit 	<ul style="list-style-type: none"> Regular review to ensure efforts are achieving progress to sustainability/ better environment/ efficient business etc
Enterprise Option 1	<ul style="list-style-type: none"> Focus is on immediate production issues. Market requirements are assumed. Market is probably local 	<ul style="list-style-type: none"> No formal environmental management 	<ul style="list-style-type: none"> Planning focus is primarily on production aspects 	<ul style="list-style-type: none"> No EMS implemented—crises addressed as they arise 	<ul style="list-style-type: none"> Records (if any) focus on production aspects 	<ul style="list-style-type: none"> Review focuses on production and financial aspects
Option 2	<ul style="list-style-type: none"> Maintain focus on production and obvious or likely environmental issues/risks. Avoid unnecessary paperwork (record keeping) 	<ul style="list-style-type: none"> Consider whether current farm practices are good for business and the environment in the long term 	<ul style="list-style-type: none"> Review on-site activities; identify those with possible impact on environment; recognise where action is needed to reduce impact and improve performance Plan to minimise impacts 	<ul style="list-style-type: none"> Carry on business with regard to reducing the identified impacts 	<ul style="list-style-type: none"> Record what seems significant 	<ul style="list-style-type: none"> Think about what has/is happening and what should happen in future
Option 3	<ul style="list-style-type: none"> Focus on identifying and managing significant environmental impacts 	<ul style="list-style-type: none"> Consider whether current farm practices are good for the business and the environment in the long term 	<ul style="list-style-type: none"> Identify environmental impacts and actions causing them (as above) Plan to address environmental issues of major concern 	<ul style="list-style-type: none"> Implement plan to manage serious environmental issues 	<ul style="list-style-type: none"> Keep records of activities and conditions as required by the plan. 	<ul style="list-style-type: none"> Satisfy yourself that plan is effectively addressing issues Identify potential areas for improvement. Revise plan accordingly

^a A model example from the viticulture industry, based on the CRC for Viticulture 7 Level Model

Appendix 2. (cont'd) Phased Approach to EMS^a

Management Framework	Objective	Institutional arrangements	Planning	Implementation	Monitoring and Evaluation	Review and Improvement
SCALE:						
Option 4	<ul style="list-style-type: none"> Focus is on a formal EMS (Plan, do, check, review, etc) based on criteria established by the operator or manager Management control is extended to an external auditor (e.g. a produce buyer) to satisfy the manager and/or 2nd party of the environmental performance 	<ul style="list-style-type: none"> Commit (in writing) to continual improvement in management of the farm business and the environment Commit to a formal EMS with an appropriate policy (EMS designed to meet standard identified by a stakeholder e.g. processor, supermarket) 	<ul style="list-style-type: none"> Identify <u>all</u> significant environmental impacts and the activities causing them Develop an EMS Identify <u>all</u> significant environmental impacts and the activities causing them 	<ul style="list-style-type: none"> Systematically work to reduce environmental impacts and improve business processes Systematically work to reduce environmental impacts and improve business processes 	<ul style="list-style-type: none"> Keep records of activities and conditions as required by the EMS developed for the farm Keep records of activities and conditions as required by the standard identified by stakeholder 	<ul style="list-style-type: none"> Focus is on a formal EMS (plan, do, check, review, etc) based on criteria established by the operator or manager Management control is extended to an external auditor (e.g. a produce buyer) to satisfy the manager and/or 2nd party of the environmental performance
Option 5	<ul style="list-style-type: none"> Aim is to meet the requirements of a widely accepted EMS protocol, e.g. EUREPGAP, ISO 14001, etc. 	<ul style="list-style-type: none"> Commit to a formal EMS compliant with a recognised independent standard e.g. ISO 14001, EUREPGAP etc. Develop a policy based on the protocol 	<ul style="list-style-type: none"> Identify <u>all</u> significant environmental impacts and the activities causing them 	<ul style="list-style-type: none"> Prioritise and systematically work to reduce environmental impacts and improve business processes 	<ul style="list-style-type: none"> Keep records of activities and conditions as required by the chosen EMS protocol 	<ul style="list-style-type: none"> Aim is to meet the requirements of a widely accepted EMS protocol, e.g. EUREPGAP, ISO 14001, etc.
Option 6	<ul style="list-style-type: none"> Aim to meet widely accepted EMS protocol, e.g. ISO 14001 and a recognised standard established to protect specific features of the environment, e.g. Marine Stewardship Council to meet increasing market expectations 	<ul style="list-style-type: none"> Commit to formal EMS compliant with independent standard setting minimum criteria for sustainable production and land use. Enables product certification, e.g. Marine and Forest Stewardship Councils 	<ul style="list-style-type: none"> Identify <u>all</u> significant environmental impacts and the activities causing them 	<ul style="list-style-type: none"> Prioritise and systematically work to reduce environmental impacts and improve business processes 	<ul style="list-style-type: none"> Keep records of activities and conditions as required by the chosen EMS protocol 	<ul style="list-style-type: none"> Aim to meet widely accepted EMS protocol, e.g. ISO 14001 and a recognised standard established to protect specific features of the environment, e.g. Marine Stewardship Council to meet increasing market expectations

^a A model example from the viticulture industry, based on the Cooperative Research Centre for Viticulture 7 Level Model

Appendix 3. Guiding principles for ESD in Australia

The Goal for Ecologically Sustainable Development (ESD) in Australia is:

Development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes upon which life depends.

The Core Objectives are:

- to enhance individual and community wellbeing and welfare by following a path of economic development that safeguards the welfare of future generations
- to provide for equity within and between generations
- to protect biological diversity and maintain essential ecological processes and life-support systems.

The Guiding Principles are:

- decision-making processes should effectively integrate both long and short term economic, environmental, social and equity considerations
- where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation
- the global dimension of environmental impacts of actions and policies should be recognised and considered
- the need to develop strong, growing and diversified economy that can enhance the capacity for environmental protection should be recognised
- the need to maintain and enhance international competitiveness in an environmentally sound manner should be recognised
- cost effective and flexible policy instruments should be adopted, such as improved valuation, pricing and incentive mechanisms
- decisions and actions should provide for broad community involvement on issues which affect them.

These guiding principles and core objectives need to be considered as a package. No objective or principle should predominate over the others. A balanced approach is required that takes into account all these objectives and principles to pursue the goal of ESD.

Source: 'National Strategy for Ecologically Sustainable Development', Commonwealth of Australia, December 1992.